EMSO ERIC 2ND CALL FOR PHYSICAL ACCESS IS NOW OPEN!

EMSO ERIC 2nd Call for Physical Access is now open! The objective of this call is to offer physical access to EMSO Facilities where users’ devices can be installed, including sensors, instruments, systems, new technologies and where new procedures/experiments can be tested/take place. The set of Regional Facilities offered for access provides the broadest scientific and technological capabilities to future users. In 2023, seven Facilities are available (up from four last year), two at the Atlantic Ocean and five at the Mediterranean Sea.

This is a unique opportunity for scientists and research engineers to avail of high-quality, interlinked instrumented platforms operating in open ocean for carrying out research and/or testing activities. Regional Facilities’ engineers and scientists can also provide training and co-development to users interested in learning specialised techniques/methodologies and developing new products, taking advantage of years of experience gathered at EMSO Facilities’ labs.

Tailored data collection by the Facilities’ instruments is another service that may be provided.

The evaluation of project proposals will be performed every two months and the selected ones will be funded. Funding consists in Facility Access Units (days of usage) and economic support for operations, travel, shipping and consumables. This economic support amounts to 75000 euros for all projects in 2023 and will be distributed evenly among the six cut-off dates.

This 2023 call is expected to fund a minimum of seven projects.

The next deadline is June 30th.

Don’t miss this opportunity to have access to our world-class facilities! To know more about the whole offer, the application procedures and
OCEANS 2023 - Limerick 5-8 June 2023

OCEANS is the bi-annual event for global marine technologists, engineers, students, government officials, lawyers, and advocates. The conference is recognized as the premier forum for the international marine community to meet and discuss relevant topics and current trends while creating a community of learners and influencers who consistently advance research, practices, and policies for the marine field.

OCEANS 2023 features an associated Exhibition area with companies and institutions representing the wide range of activities found in the marine community. Hosted this year by University of Limerick, the Marine Institute is proud to be a Key Partner to Oceans 2023 conference which is the flagship event of the Marine Technology Society (MTS) and the IEEE Oceanic Engineering Society (OES).

The Marine Institute is looking forward to welcoming all attendees and delegates to our exhibition stands over the course of the 3 day conference. The MI Stand has been carefully curated to highlight our key involvements in marine research infrastructures and our associated collaborations and memberships including, EMSO ERIC, ARGO and Ireland’s national ocean observation programmes.

Among the several conferences and activities that will take place in OCEANS 2023, we are pleased to point out the presentation paper regarding the new European project TRIDENT in which EMSO ERIC and Marine Institute are highly involved: TRIDENT - Technology based impact assessment system for sustainable, transparent deep sea mining exploration and exploitation. A project overview, presented by the author Eduardo Silva, INESC TEC.

Oceans 2023 is endorsed by the UN Decade of Ocean Science for Sustainable Development.

Further information, registration and exhibition details, here.

Author: Marine Institute

CELEBRATE AND TAKE ACTION WITH EMSO AND INGV FOR WORLD OCEANS DAY!

INGV and EMSO, as proud member of the Friends of United Nations World Oceans Day (FOWOD), are glad to invite you to the upcoming event “World Oceans Day: Knowing, Understanding, Living together”
organized on June 8th to celebrate World Oceans Day (WOD). The 2023 WOD theme “Planet Ocean: the tides are changing” puts the ocean at first place stating the need to join forces of decision-makers, scientists, private sector executives, civil society representatives, indigenous communities, celebrities and youth activists and more to raise awareness on the status of our oceans.

The event is organized along three days of science and art, and aims at immersing the participants in an extraordinary experience to create links with the natural environment, learn more about the oceans and understand how to contribute to its preservation.

Specifically, thanks to the participation of experts who are engaged in studying and protecting this extraordinary resource at a national and international level, we will discuss together the vulnerability of the ocean and we will discover the importance that it has for maintaining Earth’s life.

The “World Oceans Day: Knowing, Understanding, Living together” will be held at the meaningful context of the Santa Severa’s Castle, located along the Tyrrhenian coast in the north of Rome, Italy.

More details to join this amazing event here

Authors: INGV, EMSO

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The Marine Research Infrastructures in the European Marine Observation landscape – Presented at Oceans 2023 - Limerick 5-8 June 2023

OCEANS 2023 is the bi-annual event for global marine technologists, engineers, students, government officials, lawyers, and advocates. This year, Oceans 2023 will be hosted in University of Limerick, Ireland and will run 6th – 8th June. This important Conference is recognized as the premier forum for the international marine community to meet and discuss relevant topics and current trends while creating a community of learners and influencers who consistently advance research, practices, and policies for the marine field.

**Alan Berry** (Marine Institute & EMSO SmartBay), deputising for **Juan José Dañobeitia**, (DG, EMSO ERIC), will present the recently published Frontiers in Marine Science Policy Brief The Marine Research Infrastructures in the European Marine Observation landscape (Juan José Dañobeitia et al, 2023). This paper describes the significance of the marine RIs in the European Marine Observation Landscape, their status in terms of cooperation, coordination and integration. It highlights the socio-economic benefits for this integration process, being a significant pillar of the European Ocean Observing System (EOOS). This significant review presents the following key conclusions:

- Marine RIs are key large-scale tools for understanding marine environment complexities using multi- inter-disciplinary approaches.
- Addressing environmental challenges is crucial for life on Earth.
- They have a significant role in strengthening safety and protection at sea and mitigate the multiple risks related to severe changes due to climate change, sea-level rise, geo-hazards, anthropogenic pollution, and loss of biodiversity.
- Marine RIs provide high-quality, sustained services of regional and/or global impact for a wide variety of stakeholders.

The full paper can be accessed here

Author: Marine Institute
SmartBay celebrates Family Fun Day as part of EMD In My Country Event

The annual SmartBay Family Fun Day 2023 took place in Spiddle as part of this year’s European Maritime Day - In My Country event on Saturday the 27th of May.

Guests young and old enjoyed the day with an exciting mix of marine science workshops and family fun with some hands on demonstrations of how and why we measure ocean observation and why this is important. We were also delighted to host Gary Kendellen from Galway Atlantiquaria who always inspires interest and enthusiasm in learning more about our local shores.

Visitors enjoyed the SmartBay Virtual Tour which allows on-line navigation around a full 360° tour of the SmartBay facilities. The SmartBay Observatory also hosts an underwater camera, that streams live video footage from 20 meters depth. All were fascinated to view the live feed from their local shores of An Spidéal. The live feed and virtual tout are available to view via www.smartbay.ie.

The SmartBay Observatory is situated 1.5km off the coast of An Spidéal and is unique as Ireland’s only underwater cabled observatory, one of only three in Europe, providing access to continuous marine monitoring and observations 24/7. The SmartBay team from the Marine Institute and BlueWise Marine were delighted to welcome the community of An Spidéal to the SmartBay Family Fun Day and it is a great opportunity to engage with all our guests on the importance of marine observations.

The SmartBay Observatory continuously monitors and transmits live data from beneath the waters of Galway Bay and is freely available online. These data are vital in monitoring the marine environment and contributing to national and international oceanographic monitoring programmes.

The SmartBay Observatory is part of Ireland’s national marine research facilities and is the Irish component of the European Multidisciplinary Seafloor Observatory (EMSO) research infrastructure.

Author: Marine Institute
SmartBay Celebrates Engineers Week with Galway Atlantaquaria - taking a look at Ocean Observations!

On Saturday the 4th March 2023, the SmartBay Observatory Team were delighted to team up with Galway Atlantaquaria and Argo-Ireland to celebrate the start of Engineers Week. The day was committed to inspiring young engineers by providing a showcase of some of the advanced technologies that enable us to observe and monitor the ocean and seas around us. Throughout the day, scientists from the SmartBay Observatory and the Marine Institute’s Argo-Ireland team showcased the various technologies to demonstrate the importance of marine engineering in ocean observations and monitoring.

Visitors learnt about these two distinct observation technologies and discovered the difference between fixed location underwater observatories such as SmartBay and the autonomous drifting Argo floats. The interactive Virtual Tour of the SmartBay provided an in-depth look at the crucial elements that make the cabled Observatory possible. Live streaming footage from the underwater camera gave plenty of inspiring and exciting views from 23m depth in real-time. Visitors took the opportunity to also see up close the Argo float and a selection of marine sensors that allow continuous real-time underwater monitoring which provide ocean researchers unique access to observe ongoing changes in the marine environment.

Garry Kendellen of Galway Atlantaquaria said, “The SmartBay Observatory and the Argo float technologies are amazing examples of engineering that help us monitor the ocean. These devices give us valuable information on changes in the health of the ocean and help us to monitor the effects of Climate Change over time.”

The SmartBay team is proud to support Engineers Week which brings the fascinating world of engineering to life in communities nationwide, inspiring children to engineer the Ireland of tomorrow. Alan Berry, Section Manager of Marine Research Infrastructures at the Marine Institute said, “Engineers Week is a particular favourite of mine and it is always so encouraging to see the enthusiasm and interest of the next generation of marine engineers and scientists. It is a great opportunity to highlight the significance of marine engineering in providing highly specialised technology that allows us to collect and share vital data from the world’s ocean which would otherwise be next to impossible.”

The SmartBay Observatory is installed on the seabed in Galway Bay, 1.5km off the coast of An Spidéal, on the west coast of Ireland.

With thanks to our hosts Galway Atlantaquaria from the SmartBay Team from Marine Institute, BlueWise Marine and P&O Maritime.

Click here to take our SmartBay Virtual Tour

Author: Felicity Donnelly, Marine Institute
EMSO ERIC meets EGU - A step forward European and international cooperation

One big event covering all disciplines of the Earth, planetary, and space sciences, the EGU (European Geosciences Union) General Assembly 2023 took place in Vienna from the 23 to the 28 of April 2023 and gathered thousands of geoscientists from all over the world.

This year, EMSO ERIC has been strongly present, involved in different initiatives to increase its visibility, to enhance European and international cooperation and to consolidate its successful collaboration within the ENVRI community. For the first time, indeed, EMSO ERIC has been part of the strategic and inspiring ENVRI booth, having the chance to advertise the ERIC and to promote its work for the benefit of a more and more broad community of researchers. According to the vision and to the mission of EMSO ERIC, a valuable cooperation, in its different nuances, represents the foundation of the pathway towards a wider success in terms of maximising the impact of R&I and contributing to the resolution of the major scientific, technological and societal challenges that characterize our present and which might touch our future. Following this main driver, the representatives of EMSO ERIC who flew to Vienna to join the EGU had the precious opportunity to hold a lunch talk titled “Observing the ocean from sea-surface down to seafloor: EMSO ERIC and the crucial role of European and international cooperation in a nutshell” and focused, at the same time, on the crucial role that Oceans play for life on Earth and for its climate and on the importance of cooperation when it comes to find out and develop solutions to the different crisis which currently affect all of us (e.g., climate change, pollution, etc.).

Furthermore, EMSO ERIC has been also involved in the poster session “Research Management: Challenges and Solutions for Successful Research Projects and Programmes” with a work dedicated to the added value of cooperation and of a successful project management within EU funded research projects, especially when these projects gather different members of the consortium that forms EMSO ERIC and which represents its beating heart.

A step forward European and international cooperation to work on a better tomorrow!
EMSO-EUXINUS campaign in a nutshell

EMSO-EUXINUS Infrastructure of The National Institute for Research and Development on Marine Geology and Geo-ecology GeoEcoMar, part of EMSO-ERIC Research Infrastructure, permitted physical access on its platform and to its buoys to deploy a sensor package providing physical and chemical parameters of the sea water and to assess its performance and capability in the Black Sea environment.

Maintaining the monitoring infrastructure of the Black Sea is an important activity the deployment took place at the beginning of April 2023 and is to last one year, until April 2024.

This maintenance cruise is part of a Horizon Europe DOORS project (Grant agreement: 101000518), one of its goals being to deliver the infrastructure required to understand the Black Sea ecosystem and to provide evidence to shape policy in line with the Black Sea Strategic Research and Innovation Agenda. This will be achieved partly through establishing innovative/smart observations in the Black Sea for sustained biogeochemical monitoring. The National Oceanography Centre (NOC), partner of EMSO-ERIC, is tasked with developing and testing new biogeochemical sensor technologies in the Black Sea for long term autonomous observations.
The POSEIDON system - Recovery of Athos and Mykonos stations

The POSEIDON system deals with serious financial problems that put in danger the systematic and efficient operation of its recording network. While the financing of the national research infrastructures is being suspended since 2021 and the HCMR’s Institute of Oceanography is unable to support the infrastructure, the shrinking of the system’s recording network was inevitable. In this context, during the last maintenance cruise of the POSEIDON mooring network, the stations deployed south of the Mount Athos peninsula and north of Mykonos Island were recovered. The Athos station has been in the area since May 2000 and its 22 years of operation created one of the longest oceanographic time series data in the Eastern Mediterranean.

A permanent monitoring network which provides long time series monitoring is essential to understand the effects imposed on the marine environment due to climate change. In addition, actions related to the Marine Strategy Framework Directive implementation are expected to be affected by the absence of data provided on a systematic basis.

Photo: Athos and Mykonos buoys were recovered

Author: HCMR
The Western Mediterranean Research Facility comes back to shore for make-up and refit!

At the end of August 2022, the Western Mediterranean Sea Research Facility (W1M3A) was recovered to the shore in a dockyard in Savona for refitting after a long period of operation at sea. It was a noteworthy operation devoted to prolonging the life of the observatory and making it ready for new future scientific missions.

After more than 14 years of continuous operation at sea, the Western Mediterranean Sea RF (W1M3A) has been recovered to the Palumbo shipyard in Savona for refitting at the end of August. The refitting is funded by the National Research Council of Italy (CNR) and by the Ligurian Region in the framework of a wider support to regional infrastructures.

It was a rather complex and fascinating operation, starting with the trawling of the buoy in vertical position from its deployment area to the coast close to Savona lasting about 12 hours. The, advancing with the rotation of the buoy to the horizontal position to have its draft compatible with the bathymetry of the port. The recovery concluded with hauling the buoy on to the pier using a large mobile crane.

The works in the dockyard will mainly consist of cleaning, sandblasting and painting the hull, and the repair of some damage to the structure due to collision with ships and ageing of the materials.

The team of CNR will also implement some improvements to the buoy making it ready for hosting new sensors in the coming years to enhance the observational capacity of the observatory.

The system will be redeployed at sea in October with an upgraded control unit to continuously provide meteorological data and oceanographic observations from the sea surface to the ocean interior.

Specially trained researchers from CNR will service the buoy on the pier before its launch at sea, fixing underwater cables along the hull of the buoy, and installing the wave meter system and clamping solar panels to the upper part of the buoy.

The complete equipping of the buoy will follow immediately after mooring at the centre of the Ligurian sea: researchers will install meteorological sensors and electronic equipment on the top trellis of buoy and divers will deploy oceanographic equipment along the hull.
Photo 1: The Western Mediterranean approaches the pier in Savona.
Photo 2: Hauling of the buoy to the pier.
Photo 3: The buoy lies on the notches of the shipyard. People wander around browsing the structure and picking up the attached mussels.
Photo 4 and 5: The incredible picture of the life that has formed on the buoy structure over the years. The part of the buoy pictured stayed at about 40 meters in depth.

CREDITS OF THE PHOTOS:
Roberto Bozzano, Sara Pensieri, National Research Council of Italy.

Authors: Lorenza Evangelista, Giuseppe Magnifico, Sara Pensieri, Roberto Bozzano (CNR)

EU Projects

Since the beginning of this year, EMSO ERIC has participated in four new innovative and exciting Horizon Europe-funded projects in the marine domain, focusing on engineering and technology for ocean observation and monitoring. EMSO has established fruitful international relationships and cooperation with other Research Infrastructures, Institutes and universities for safeguarding the marine ecosystem and environment, bringing its skill to the table.

The four new projects in which EMSO has been involved are:

operAtional seNsing liFE technologies for maRine ecosystems (ANERIS), that aims at developing the next generation of scientific instrumentation tools and methods for sensing marine life, integrating different types of marine life-sensing technologies, such as genomics, imagingbiooptics and participatory sciences. The technologies will be implemented in a co-design framework, involving all the interested stakeholders, such as academia, industry, civil society and government.

A federated European FAIR and Open Research Ecosystem for oceans, seas, coastal and inland waters (Blue-Cloud2026), built upon the pilot Blue-Cloud project which established a pilot cyber platform, providing researchers access to multi-disciplinary datasets from observations, analytical services, and computing facilities essential for blue science.

Next generation multiplatform Ocean observing technologies for research infrastructures (GEORGE) that will advance the technology readiness level of novel sensors enabling for the first time systematic autonomous, in situ seawater CO2 system characterisation, and CO2 fluxes on moving and fixed platforms.
Technology based impact assessment tool for sustainable, transparent Deep Sea mining exploration and exploitation (TRIDENT), which aims at contributing to sustainable exploitation of seabed mineral resources, by developing a reliable, transparent and cost-effective system for prediction and continuous environmental impact monitoring of exploration and exploitation activities in the deep sea.

Read more about EMSO ongoing and closed projects [here](#).

Author: Sara Pero, EMSO ERIC

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**Gender mainstreaming**

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**Ocean's women: an interview with Laura Beranzoli**

Nowadays, gender equality is at the center of the attention of world public opinion, but not just as a topic to discuss. Indeed, it is also included in a concrete way in international strategies, policies, and roadmaps such as the 2030 Agenda for Sustainable Development of the United Nations. Nevertheless, the gender gap is still highly marked in several professional fields, among which the world of science, where regardless of training and career, getting to occupy decision-making and leadership roles is still the prerogative of men.

We want to initiate a series of interviews with women from the world of science, innovation, management, and communication to find out more about their experiences, recounting the challenges, difficulties, and achievements that have characterized their career path. We have chosen to start this female empowerment initiative with [Laura Beranzoli](#), with a background in physics and seismology, INGV Technology Director, Science Officer, and secretary of the Executive Committee of EMSO ERIC, who contributed
to the creation of the European consortium and the Joint Research Unit EMSO-Italy. We talk with her about science and gender equality together, going through the main steps of her professional growth.

Can you tell us more about what you do about yourself and what fascinates you most about your work?

For over 20 years I have been involved in national and international research projects, especially in planning the project activities, related to monitoring over time and study of geophysical and seismological phenomena at the seabed in the Mediterranean Sea and in the Atlantic Ocean as a contribution to understand the deep ocean environment unreachable by the human eye. In particular, as a research manager, my role is to discover and exploit the opportunities for research collaborations with other partners in the marine domain, more specifically about the long-term data acquisition using underwater observatories, which provide a huge source of geophysical and oceanographic data witnessing the health of the ocean basins.

I feel like a small hub that tries to connect and put in place the scientific and technological resources of INGV and align its strategic objectives and those of the EMSO community with national and European trends in research policy. It is a challenging role thanks to which, however, I have the great opportunity to see the birth of collaborations in new research areas and appreciate the achievements over time, such as the development of new instruments, and new deep-sea observation platforms and tools.

How did you first become interested in the field of ocean observation?

I had chosen to study Physics at the University almost by accident. To tell the truth, I was undecided about whether to choose Mat, but fortunately, I did not. That would have not been the appropriate choice for me. And this was good because Physics studies provided me with a solid foundation and a valuable methodological and mental approach. Then over time, I declined my skills based on the career path I was carrying out. For example, I had the opportunity to apply for a temporary position in seismology and started to work in this field. I have to confess I had to study many topics from scratch since my background was very general; in addition, I had to learn especially the in-field practice, specifically learning how to use at best devices and analysis tools for seismological observations. In this period, I had to cope with some difficulties that today we can ascribe to the theme of gender difference in this job. For example, unlike my male colleagues, in my early career, I was very rarely asked for the participation in installation of new seismic stations either in Italy or abroad. From here, I then moved on to how the geophysical instruments can be assembled together in a single piece of equipment to observe natural phenomena at the bottom of the sea, simultaneously on different data streams. Finally, I moved away again, to devote myself more to finding and bringing the multidisciplinary approach in research into national programs.

What do you think is your contribution to the ocean global challenge?

With my colleagues in INGV, we made a real cultural jump starting from the 90s onwards: we tried to do at sea what traditionally INGV's research had made on the land according to its statutory mission, something that was out of INGV radar until then. INGV seismologists have been almost exclusively focusing on the analysis and interpretation of seismological and land-based recordings. The interest in the marine environment has grown over time, and in recent years, a working group has started focusing on the real-time analysis of the seismological and water pressure signals that could precede the tsunami wave, an aspect that is certainly important to try and mitigate the impact of catastrophic events in the future, as happened, for example, in South-East Asia a few years ago. My group has recently started a collaboration with other INGV researchers in geochemistry for setting up reliable sensors and protocols for measuring CO2 at depth. We need to measure more reliably and know more exactly about the ocean's capability to retain CO2 produced by many organisms that live in our oceans, transported by the currents, and how much of it is released into the atmosphere.

Can you tell us what challenges you encountered to get to where you are now?

There have been some decisive leaps that I had to make for my personal and professional growth. The first occurred shortly before the attack on the Twin Towers, unfortunately following the loss of a colleague older than me who I worked very closely. At the time, I had already started to deal with European projects but mainly from a technical point of view: for example, I performed as a liaison between the scientists - I mean my colleagues - and the engineers of the company that had to build environmental monitoring tools for us. After my colleague passed away, I felt lost and panicked because this colleague was almost a mentor also from a human relations point of view. It was necessary at that time that in one way or another, I had to be able to take over his work, which was more of coordination, more of responsibility. It was a very difficult period because at the time I had not any paved way for this work since very few groups were involved in research projects. I was scared to fail since I felt also the responsibility to demonstrate that research programs of INGV interest could be also funded competitively through
The second important step was when the head of our research unit retired. Being the oldest of the group, it was clear that I would have taken over the task of the head of the unit. I felt a strong commitment to drive change and favour the professional growth of the younger researchers of the group. Again, the gender difference weighted that occasion, and I had to impose myself on the internal establishment and the wider national community. Now, that I am close to the end of my carrier, I continue pushing my younger colleagues to come forward and overcome the difficulties I found in the past.

**Do you feel you have the same opportunities for professional growth as the men in your organization? Did maternity represent an obstacle or a benefit for your role?**

Inevitably, with the birth of my first daughter and for the first few years when she was still a very young girl and my second son was a baby, I didn't take any business trips and this kept me apart from the community. At that time, virtual meeting platforms were not as widely used as today, and had very limited functions. With two children, juggling family time and work was not very easy: the job has been always demanding. I didn't ask for an extension of the parental period as many other colleagues did, because my research group was very small at that time and a staff unit lack would have a strong impact, and also because I was aware that I would have felt frustrated if I had dedicated a too long time to housekeeping works and babysitting. My husband and I planned our calendar in such a way that we could conveniently rotate although his schedule was a little flexible, being a school teacher: I went to work when he was at home, that is very early in the morning and late in the afternoon, and I also worked often during weekends.

**Have you ever promoted other women in your work experience or have you ever been the one encouraged by other women?**

In our research group, the gender balance has changed considerably in recent years: women are many more than men recently! The leadership role is still an open issue: at INGV, at EMSO, as in another working environment, we have never yet had a female president. Nevertheless, I think we are on the right track. Now there is a lot of talk about gender balance, and the point is to become promoters of change. Starting from the little things: for example, I had the chance of pointing out women for relevant positions or roles in panels, boards, etc.

**What advice would you give to young women who are entering the world of work to bring out their abilities?**

In the research community, I see many more determined women today than in the recent past in pursuing their professional aspirations. The advice I feel like giving is to do what they believe in, not to undervalue themselves - women are used to doing it. Opportunities show them up eventually, but we have to grab them too! Moreover, women should perhaps ask and know why they have are not appointed for a position, a job, or a role; this request could have a twofold effect: that is the concerned person to know how she can improve and where she has to direct the effort more, and the counterpart to give a plausible explanation of the choice made.

*Author: Sara Pero, EMSO ERIC*