JUNE 2024 | ISSUE NO. 1

NERITES

Monitoring Underwater Heritage

NEWSLETTER

About NERITES project

NERITES project was born from the need to develop monitoring solutions for Underwater Cultural Heritage sites, that offer autonomous and robust methods for detection of chemical, environmental and geophysical indicators. These methods significantly reduce the costs of associated campaigns, in situ monitoring techniques and flexibility of platform deployment.

NERITES project focuses its efforts on Underwater Cultural Heritage monuments and artifacts assessment, being the most challenging environment when compared to most in-land cases. The technologies proposed herein comprise a set of multidisciplinary scientific and engineering approaches combining beyond state of art components and methodologies, aiming at reducing OPEX (Operating expense) and CAPEX (Capital expenditure) in Underwater Cultural Heritage surveying missions.

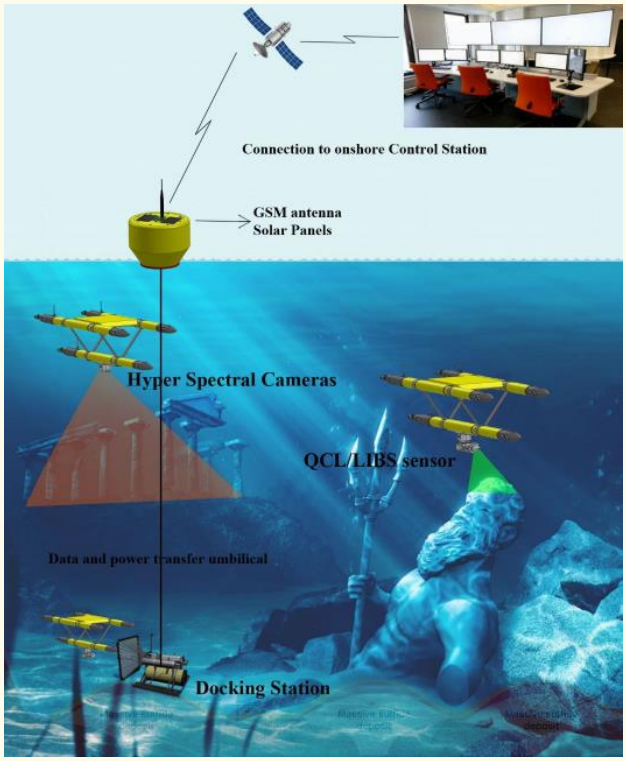
The main objectives of NERITES project are:

- → Remote measurements and autonomous monitoring of Underwater Cultural Heritage sites, including buildings, monuments and artifacts.
- → Improved accuracy in assessing the state-of-preservation and degradation of Underwater Cultural Heritage assets.
- → Alerting for a variety of conditions of the Underwater Cultural Heritage allowing the time effective intervention.
- → Cost effective solution with decreased implementation risk for humans (divers).
- → Transition to greener solutions aligned with EU's and UN's policies.

Funded by the European Union

The state-of-art-NERITES technology

The project's target is the use of autonomous platforms for remote monitoring and chemical mapping of Underwater Heritage sites, such as AUVs (Autonomous Underwater Vehicles), smart BUOYs and ROVs (Remote Operated Vehicles). A swarm of self-coordinated AUVs (such as QCL and LIBS sensors) will be responsible to monitor, survey and scan the heritage sites for detecting/identifying and monitor degradation, state of the Underwater surrounding site, possible intervention actions for alarming conditions etc. AUVs will communicate with the base (BUOY), which is responsible to collect and analyse deeply AUVs information thus providing enhanced site situation awareness insights to the external human supervisor/user. Furthermore, the BUOY will be equipped with renewable solar collectors to ensure continuous power availability and reduced mission's footprint, enough to support the overall mission energy needs. The user will be located in a remote monitoring station, onshore, to allow periodic mission life cycle management and general overview of the whole system situation based on real-time visual analytic mechanisms.



The NERITES autonomous monitoring concept.

The pilot sites

Fournoi, Greece

Fournoi, located in the eastern Aegean Sea in Greece, is one of two NERITES pilot sites. It is a complex of 20 islands and islets with a historical significance. An underwater survey from 2015 to 2018 resulted the location of 58 wrecks, which span a wide chronological range, highlighting Fournoi's enduring navigational importance.

Pozzuoli Baia, Italy

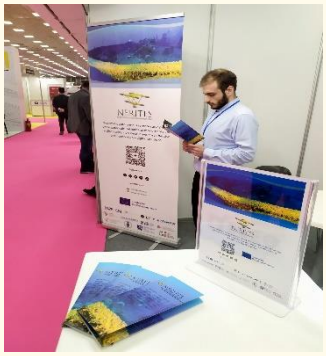
The Pozzuoli Bay, part of the Campi Flegrei caldera near Naples, Italy is a volcanic area with significant historical and archaeological importance. The area contains ancient remains from Puteoli harbor and Baianus Lacus, discovered through underwater archaeological surveys, highlighting luxury villas, thermal complexes, and the Portus Iulius with its extensive infrastructure. Secca delle Fumose, noted for its thermal bath remains and hot fluid vents, underscores the bay's complex geological history.

Project Data

This project has received funding from the European Union's Horizon Europe research and innovation program under grant agreement No. 101132575. The budget amounts to 3.994.750€ and its duration is 36 months. The project consortium includes Laser Hannover Zentrum (LZH) and Ulm University from Germany, Atlantis Consulting, International Hellenic University (IHU), KORSEAI Institute and the Center for Research and Technology (CERTH) from Greece, University of Calabria, Graal Tech, he National Research Council (CNR) and the Minister of Culture from Italy, Alpes Lasers from Switzerland and ENGITEC Systems International (ESI) and Robust Systems Engineering from Cyprus.

Kick-Off Meeting of NERITES in Hannover, Germany

The Kick-Off Meeting of NERITES project took place in Laser Zentrum Hannover (LZH) premises between February 13-14, 2024. The meeting was hybrid, with the partners of the project participating both in presence and virtually and planning the project's first steps and activities.



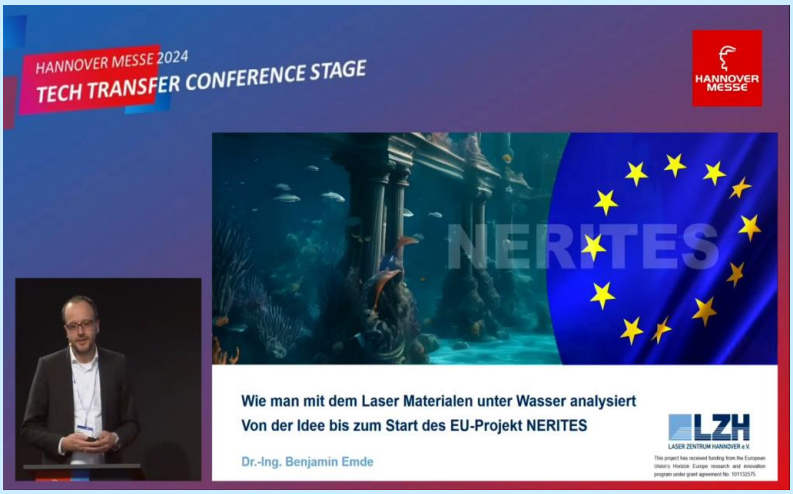
NERITES participation in BEYOND EXPO 2024, Thessaloniki

NERITES project was disseminated in the Beyond Expo exhibition, one of the world's leading showcases for innovation, business development, and technology. BEYOND was held in Thessaloniki, Greece during April 25-27, 2024, with a special focus this year on artificial intelligence.

The visitors of the Atlantis booth were informed about the purpose and objectives of the project, as well as its significant contribution to the preservation of Underwater Cultural Heritage currently threatened by climate change and environmental pollution.

NERITES Project showcased at Hannover Messe 2024

NERITES project was successfully disseminated by Laser Zentrum Hannover (LZH) at the prestigious European Innovators Conference held at Hannover Messe on April 25, 2024, in Germany. Recognized as the foremost international platform for industrial transformation, Hannover Messe highlights cutting-edge innovations and unique products from around the globe. The NERITES project was featured in the session titled "European Innovators: EU Funding for Research and Innovation."



NERITES at ''THALASSA 2024'' Conference

NERITES project was presented by ATLANTIS at the regional conference "THALASSA 2024" organized by the Cyprus Marine and Maritime Institute (CMMI), which took place on May 28th and 29th in Larnaca, Cyprus. The purpose of the conference is ringing together experts and stakeholders from academia, research institutes, industry, NGOs, and the public sector.

The presentation in the Session 5 ''Marine Cultural Heritage'' was about the "Integrated approaches fostering capacity building, protection, preservation, and sustainable valorization of Underwater Cultural and Natural Heritage."

EMRA 2024: EU-funded Marine Robotics and Applications

The NERITES project was successfully disseminated by Laser Zentrum Hannover (LZH) at the the EMRA 2024 (European Marine Robotics and Applications) in May from 27 to 29, 2024, in Arenzano of Italy. Dr.-Ing EWE Jörg Hermsdorf from (LZH) presented the innovative NERITES project in Session 3 titled " Horizon Projects". The aim of his contribution and the project presentation was to increase the visibility of the project and to network new interest groups for maritime research.

The conference program included 24 project presentations, an opening session focusing on the research and innovation needs of stakeholders, and a closing roundtable discussion. These discussions focused on possible ways to improve synergies between different funding programs. The workshop format provided ample time for discussion and networking, allowing participants to make valuable contacts and exchange ideas.

NERITES participation in EMD 2024, Denmark

NERITES project was also disseminated by ATLANTIS at the European Maritime Day 2024 (EMD2024) in Svendborg, Denmark between May 30-31, 2024. European Maritime Day (EMD) is an annual two-day event during which the European maritime community comes together to network, discuss, and outline collective action for maritime affairs, the marine environment, and the sustainable blue economy.

The visitors of ATLANTIS' stand had the chance to be informed about the NERITES' scope and objectives, through the dissemination material provided.

Follow us

Project Partners

NERITES
Monitoring Underwater Heritage

Funded by the European Union