

Underwater testing areas

- **Pipeline and cable area:** detection, sediment measuring, novel cable covering
- **UXO area:** sensors (physical, chemical, biological), video-based object detection, manipulators
- **Undersea current area:** vehicles (ROV, AUV), command and control, training and development
- **Open area:** for various temporary uses, crawler and trencher testing, testing of underwater procedures

One of the dedicated areas within the DOL is planned to be a "cable yard" with several types of subsea cables. Users will be able to develop new systems and procedures for the localisation of cables and measurement of burial depth or detection and measurement of cable faults laid at different depths of cover into the seabed.

The possible use of the yards range from long-term experiments e.g. testing of antifouling coatings to short-term use for trial tests of a ROV or AUV for a few days. Such missions or tests can be carried out on different yards in parallel or offset in time, depending on the research-design and of course the weather conditions.

FRAUNHOFER IGD: THE INTERNATIONAL LEADING INSTITUTE FOR APPLIED RESEARCH IN VISUAL COMPUTING

Competence Center "Maritime Graphics" Topics and competencies at a glance

- Underwater vision: quality improvement, object recognition and tracking, 3D reconstruction
- Visual analytics in marine research
- Projects on UXO detection, unmanned underwater vehicles, environmental monitoring
- Interactive visualisation / VR of large sensor data sets

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DIGITAL OCEAN LAB

INTERNATIONAL UNDERWATER TEST SITE FOR
TECHNICAL RESEARCH IN THE BALTIC SEA



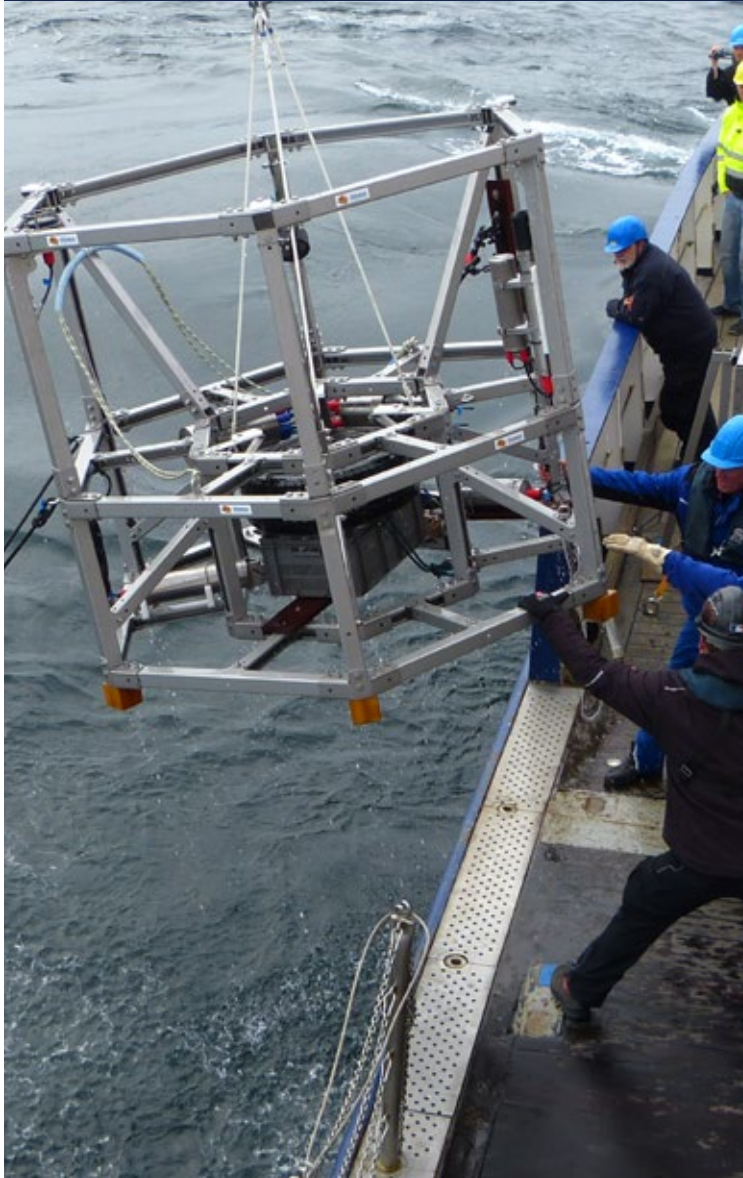
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Importance of an undersea test site

Underwater technology, its research and development constitute an interdisciplinary high-tech segment with large growth potential in fields such as computer science, electrical and mechanical engineering, and materials science. The Digital Ocean Lab (DOL), a comprehensive underwater test site in the Baltic Sea, will provide optimal conditions for underwater research considering the conditions for research in open water. These conditions are known to be harsh and involve high costs.

The DOL, which is linked to the artificial reef off Nienhagen, will offer a lab-like environment facilitating new products, services and digital economy. The testing area of about 300 hectares will be structured in different yards – each one dedicated to a specific use case, such as UXO-detection, pipeline inspection or ROV pilot training.



Optimal conditions for underwater research

Offshore infrastructure

- Area approx. 300 ha, water depth approx. 16 m
- Central infrastructure (power, communication, positioning)
- Near artificial reef: re-use of existing structures, project coordination, synergy

Onshore infrastructure

- Operations center (test site monitoring, real-time data transfer, measurement data storage, mission control)
- Wave pools, quay wall, laboratories and workshops
- Specialised ships

The Digital Ocean Lab is part of the Ocean Technology Campus in Rostock. It combines a broad selection of specialised companies and research organisations and by this forming an attractive eco system for the next generation of subsea technology.