



The MariData project provides important contributions to improving the energy efficiency of ship operations and reducing emissions

Energy efficiency has always been a key concern for shipbuilding and shipping. Whereas in the past it was mainly economic reasons that motivated the search for a low power requirement for a ship, today ecological reasons and compliance with legal regulations to reduce emissions become more and more important. These demand a consistent strategy of energy efficiency as well as a significant reduction of exhaust emissions not only during ship design and construction but also during ship operation.

For these reasons, the HSVA, together with leading partners from the maritime industry, launched a large-scale project at the beginning of the year to develop comprehensive technologies for the energy management of ships and, associated with this, to reduce emissions from ship operation. In addition to Hamburgische Schiffbau-Versuchsanstalt GmbH, industry partners AVL Deutschland GmbH and AVL Software & Functions, Carl Büttner Shipmanagement GmbH, Friendship Systems AG and 52°North - Initiative for Geospatial Open Source Software GmbH, the Development Centre for Ship Technology and Transport Systems e.V., as well as the Technical University of Berlin, the Technical University of Hamburg, the University of Lübeck and the Maritime Centre of Flensburg University of Applied Sciences are involved in the project.

Together with other associated shipping companies, a future-oriented energy management and decision support system based on rational methods is to be developed, taking into account current operational status data as well as geo-information. The energy consumption of merchant ships is largely determined by their hydrodynamic properties and the systems on board. In some cases, up to 90% of the primary energy consumption is used for propulsion and must be optimally managed. The aim of MariData is therefore to develop, improve and classify simulation-based modules for ship energy management using a carefully selected combination of state-of-the-art maritime technologies and experience as well as AI-based tools and methods for a groundbreaking product for holistic ship energy and operations management.

Together with geo-information and a Decision Support System (DSS) that brings together technical, environmental and economic data, energy consumption information will be integrated into a platform that can be used both on board the ship and shore-side by a shipping company. The platform will provide on-line simulations for decision support to the ship's management, as well as assistance with short-, medium- and long-term forecasts and decisions related to ship operation.

MariData's innovations lie in the precise determination and analysis of the current ship's drag, propulsion and respective fuel consumption under realistic operating conditions, taking into account wind and wave influences and hull / propeller condition. On this basis, a rational analysis of the

influences of the individual components is carried out, thus improving the quality of the forecast and the basis for navigation decisions. Integration with state-of-the-art geoservices takes the planned system to a new level. In addition, flexible approaches to quickly generate missing data (e.g. geometry) will be considered and integrated into the analysis.

Information about the project will be made available in future via the web site www.maridata.org.

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