



PROJECT ACRONYM AND TITLE: Research on Dynamic Impacts and the Proposal of Modular Solutions for the Complex Electronic Navigation Environment (DYNAMO_SCENE)

FUNDING PROGRAMME: Call for funding of Institutional research projects of the University of Rijeka financed from source 581 – Recovery and Resilience Mechanism (University of Rijeka, Institutional Research Projects)

PERSON RESPONSIBLE: David Brčić

Project total cost	31.531,59 EUR
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SUMMARY AND OBJECTIVE: Maritime navigation on vessels subject to the International Convention for the Safety of Life at Sea (SOLAS) relies on two essential technologies: the Electronic Chart Display and Information System (ECDIS) as the primary navigational tool, and the Global Navigation Satellite System (GNSS) receiver as the vessel's main positioning source. This project proposal focuses on research and examination of factors that influence the performance and accuracy of GNSS services in the maritime environment, particularly on position reliability. The accuracy and continuous display of a vessel's position are fundamental to ECDIS, which is key in determining overall navigational functionality. As a result, the performance and reliability of GNSS services have a direct impact on the effectiveness and safety of navigation. This research aims to provide a deeper understanding of the maritime navigation environment, considering both the GNSS operational environment and the depiction of physical surroundings on electronic navigational charts. By analysing various factors—including signal transmission conditions, satellite geometry, local environmental influences, and GNSS signal interference—it is possible to identify patterns, disruptions, and anomalies that may increase the risk of degraded satellite navigation signals and positional uncertainty in specific areas. The main objective of this project is to propose a prototype system for categorizing and visualizing navigational risk zones as additional information layers within ECDIS. Beyond its scientific contributions, the project aims to improve situational awareness for navigational watch officers, support timely decision-making, facilitate navigation adjustments based on prevailing conditions, and ultimately enhance the safety and efficiency of maritime navigation through the use of navigational information systems.

Start date	End date
1 October 2025	30 September 2029

PROJECT TEAM

Br.	Member	Affiliation	Role
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2.	Mario Bakota	University of Split, Faculty of Maritime Studies, Croatia	Researcher
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