

# OCEANiCS

## At the heart of the navigation and the optimisation of CANOPEE



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The christening of Canopée took place on October 5, 2023, in Bordeaux (France) in an extraordinary atmosphere. Canopée is a world-first, and its entry into service represents a historic turning point in the maritime world. First industrial hybrid wind-assisted vessel in the world, it flies the French flag. Developed to meet the logistical needs of ArianeGroup, this next-generation vessel will ensure the transportation of Ariane 6 launcher components from European ports to the port of Pariacabo in Kourou, French Guiana, for the next 15 years. The vessel is crewed by Jifmar Guyane and commercially operated by Alizés, a joint venture between Jifmar Offshore Services and Zéphyr & Borée. Alizés is responsible for logistics operations on behalf of ArianeGroup.

Focus on this project where D-ICE plays a major role, contributing to shape the future of sustainable maritime transport



Canopée is a 121-meter roll-on/roll-off vessel equipped with 4 OCEANWINGS © provided by AYRO, intended for transporting components of the Ariane 6 rocket between Europe and French Guiana.

The vessel is equipped with the OCEANiCS bridge as part of an order placed by AYRO to manage navigation, autopilot, routing, and monitoring of the vessel's performance.

## Project History

Based on the preliminary design carried out by the VPLP Design architectural firm, the Neptune Marine shipyard, assisted by its engineering office Groot Ship Design, undertook the detailed design and construction of the vessel under the supervision of the Jifmar Group.

D-ICE has been involved in the project since April 2018, conducting statistical routing studies. By simulating a large number of optimized routes, incorporating operational constraints and historical meteorological and oceanographic data, it is possible to anticipate the vessel's behavior and performances.

These data were used throughout the design process to validate various updates: testing different sail configurations, sizing the propulsion, predicting the benefits, evaluating the impact of hull optimizations, and validating the cargo's acceleration.

Building on this collaboration, it was a natural step to equip the vessel with onboard solutions consistent with what had been used to validate its performance in the design phases.



## Total Integration

OCEANiCS supports operators daily by providing key vessel management features, including

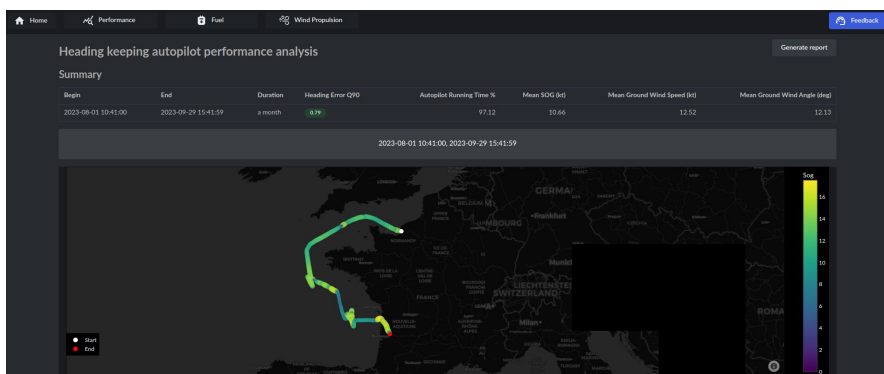
- Double ECDIS (Electronic Chart Display and Information System) for voyage planning and monitoring.
- Weather Analysis & Weather Routing module to optimize fuel consumption.
- Cutting-edge autopilot module for high-performance control of the heading and the route.
- Advanced performances visualization and analysis module.

The full integration of these features within a single platform is unique in the market. This not only simplifies and streamlines the complexity of vessels but, more importantly, significantly enhances vessel performance. A high-fidelity digital twin, based on advanced physical models and paired with the analysis of data recorded by the system, is the cornerstone of all the modules.

## Exceptional Performances

OCEANiCS incorporates disruptive algorithms at its core, developed over many years by D-ICE's engineers and researchers.

This allows for maximum performance without any compromise on safety.



**The Autopilot module is the world's first certified system to integrate advanced hydrodynamic and aerodynamic physical models at its core, with advanced compatibility with OCEANWINGS®. This provides unparalleled navigation safety and performance for vessels equipped with sail propulsion.**

Used almost constantly, the autopilot allows for precise control of the heading within one degree, representing a true revolution in vessel navigation.



## Reinventing Chart Table

Within the chart table, OCEANiCS offers a variety of modules and application that enable operators to maximize their vessel's potential to the fullest.

Building on the most advanced marine weather forecasts management module in the market, a routing module based on revolutionary algorithms, and a highly comprehensive and scalable data analysis module, OCEANiCS restores the importance of the chart table, making it the most strategic location on the vessel and a fantastic hub for crew interactions.

## About OCEANiCS

OCEANiCS is a groundbreaking technology designed to enhance marine operations' safety and significantly reduce vessel fuel consumption and associated greenhouse gas emissions. Recognized with numerous awards, including the i-Nov 2019 innovation competition, Solar Impulse, and the World-Technology Leaders Award 2022, OCEANiCS provides shipowners and operators with the most advanced features on the market for high-level performance.



## About D-ICE

Founded by scientists and engineers passionate by the oceans, D-ICE Engineering is a deeptech company established in 2015 in Nantes with the ambition to address three major challenges in the maritime world: reducing carbon footprint, improving safety at sea, and contributing to the development of offshore clean energies. Led by a team of 30 engineers and PhDs specializing in hydrodynamics, applied mathematics, robotics, and artificial intelligence, D-ICE develops multiphysical modeling and simulation tools for maritime operations, as well as innovative systems and software for navigation, control, optimization, and decision support for all types of floating assets.

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**Real Challenges.  
True Solutions.**

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