Webinaire – Services Copernicus pour le secteur maritime

14.11.2024

Framework Partnership Agreement for Copernicus User Uptake

Port et navigation

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D-ice Engineering – Project Engineer

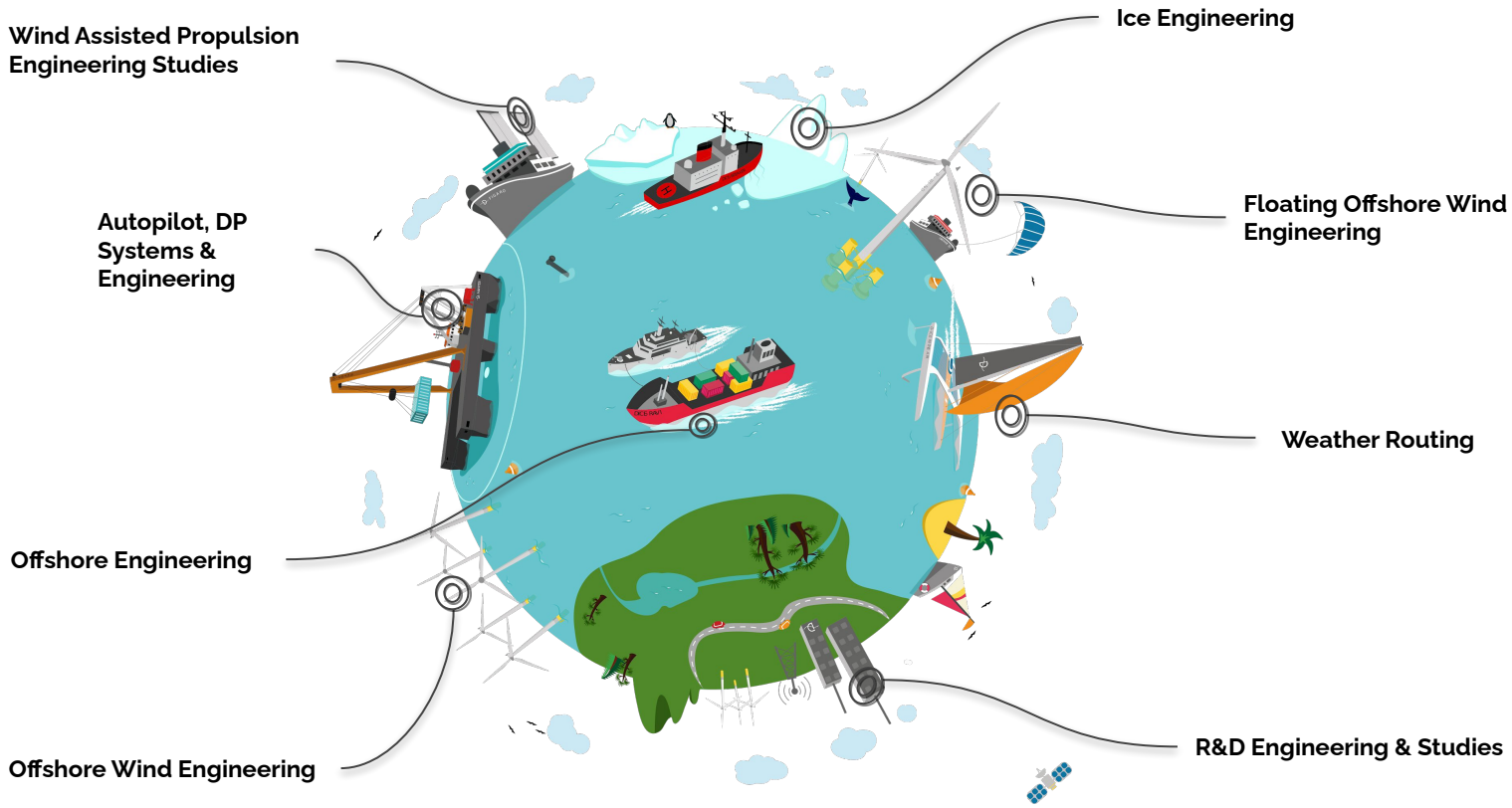
About D-ICE ENGINEERING

D-ICE Key figures

- Created in 2015
- Staff 34 FTE
- Revenues ~1.3M€ (2023)
- Fundraising
  - Seed (1,5 m€ - 2023)
  - Serie A (6 m€ - 2024)
- More than 180 projects delivered

Main ambitions

- Develop & Produce Clean Energy
- Reduce Greenhouse emissions
- Improve Safety at Sea



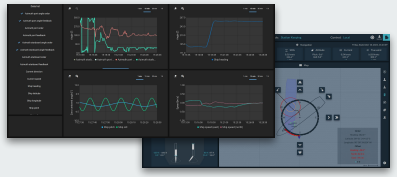
D-ICE Disruptive Technologies

Port et navigation

Deep Science

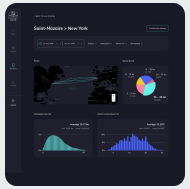
Disruptive High-Fidelity Modelling & Simulation Framework

Constrained multibody, Advanced hydrodynamics, Aerodynamics, Mooring, Wind propulsion, Advanced Weather models, Waves, Supercomputing, etc.
Accurately model any kind of operations or assets with high fidelity.



Disruptive Guidance, Navigation, Control & Data Analysis

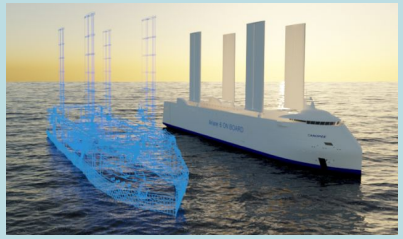
Powered by Artificial Intelligence, Big Data, machine learning, nonlinear control, nonlinear optimization, advanced signal processing to provide the best control of the operations in any conditions



Cutting-edge Weather Routing Optimization Framework

Multi-objective nonlinear optimization powered by graph theory, statistical routing, special focus on wind assisted ships

Deeptech Products For ALL SHIPS



Digital Twins

Cutting-edge, comprehensive digital twins platforms for all types of application or operations.

Spanning from design to operations.

Onboard Intelligence

Innovative & user centric system, Elastic & scalable HMI software framework, Wind Propulsion Systems ready, ECDIS, Autopilot, DP, Conning, Monitoring, Analytics, certified *(IEC 62065*, BV*, DNV*)*

SATORI - Background

SATORI

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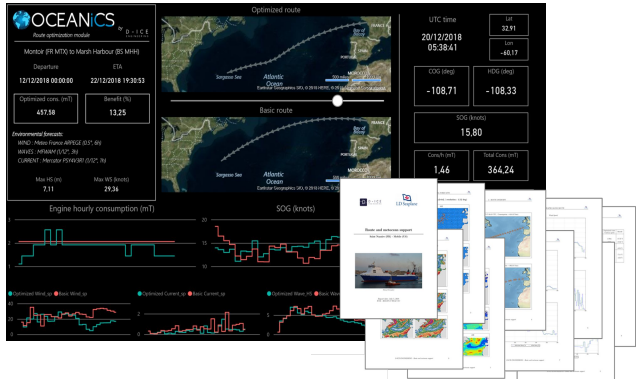
D-ICE solution

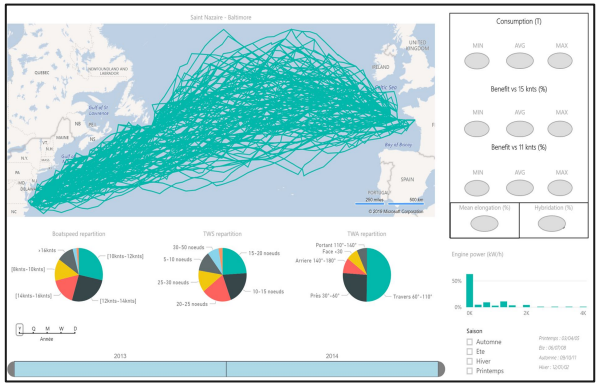
- For all kind of vessels and propulsion (sail, motor, hybrid)
- Flexible and tailorable
- Mono or multi-objective
- Integration of various operational constraints

Operational support

- Daily report & dynamic visualization
- 24/7 assistance



Statistical studies



- Routing over various years
- Fully tailorable
- Reliable metocean hindcasts
- Performance analysis

Project duration 18 months
Funded through CMEMS User Uptake Program
Market release: November 2020

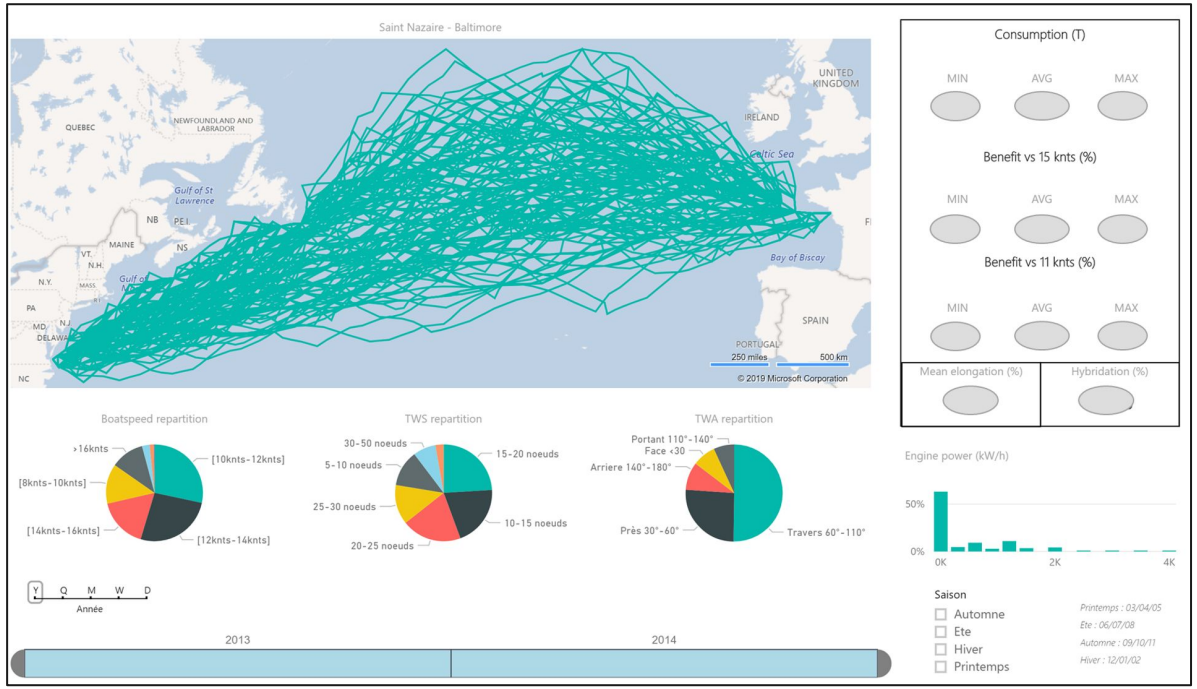
SATORI - Objective

Port et navigation

Propose a solution for **ship owner**, **naval architects**, and **solution developers** to launch statistical weather routing studies by **their own**, online.

Get statistics and evaluate:

- weather conditions
- ship performance analysis: consumption, speed, motions
- ROI on the installation of an hybrid propulsion



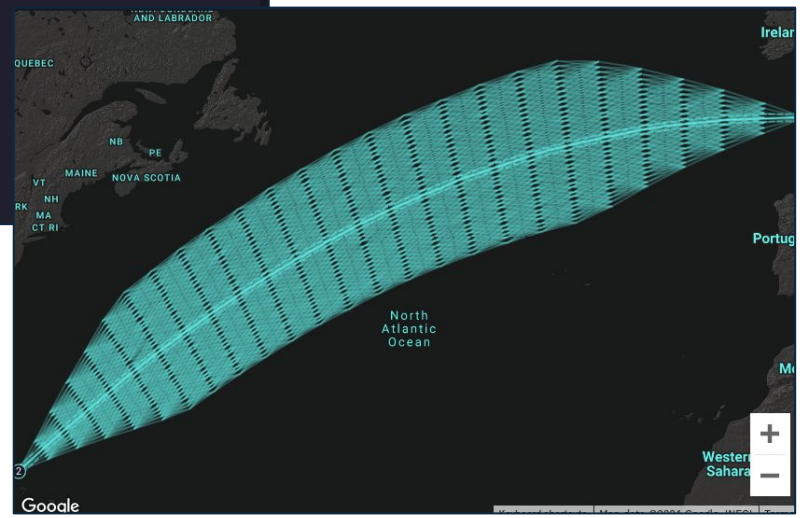
SATORI - Solution

Port et navigation

1. **Define your study** : upload your ship performance data
2. Choose your **dates, constraints on ship and route**

- *mechanical or hybrid propulsion*
- *ETA, waypoints, canal*
- *First / Last departure dates and frequency*
- *Polar tables of the ship*
- *Waves speed loss calculation*

Settings parameters

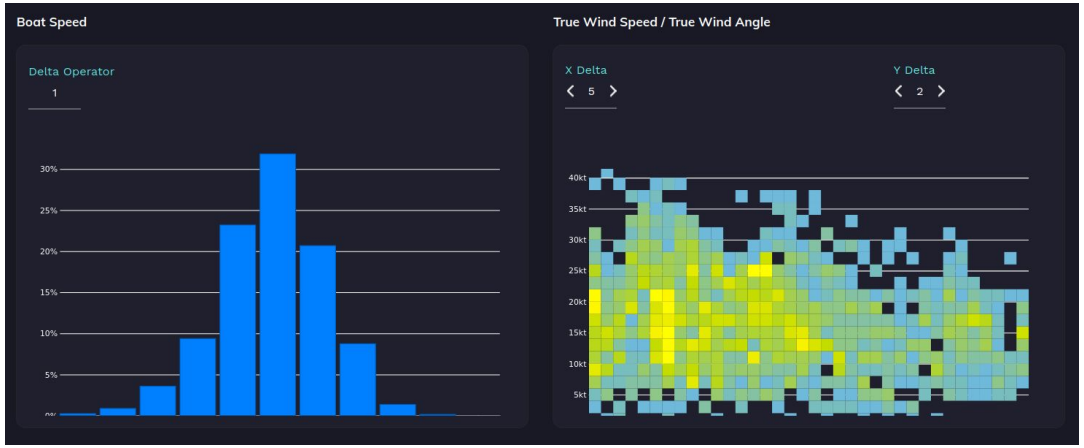


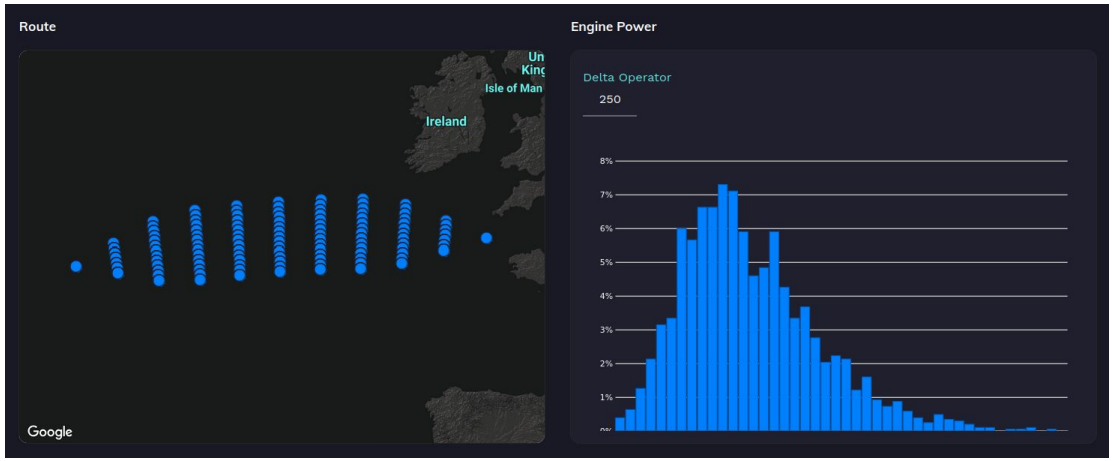
Hammock of a route

SATORI - Solution

1. **Define your study** : upload your ship performance data
2. Choose your **dates, route** and **speed parameters**
3. **Create your dashboard** : analyze your results through our dynamic visualization

- *Get statistics on the route and the weather occurrences*
- *Various visuals (map, pie chart, bar chart, scatterplots, density map)*
- *Interactive filtering from visuals selection*

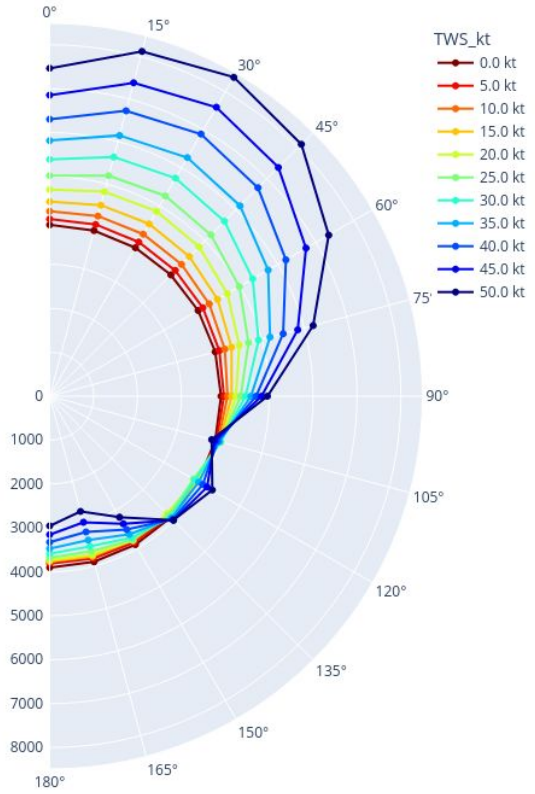




SHIPLIFY

- Online tools
- Generates the **performance polar table** of any kind of ship
- Ready to be used on **SATORI**

Shiplify is an online tool for estimating the performance of wind-assisted ships, based on a comprehensive static VPP/PPP (Velocity/Power Prediction Program), applied to a large database of generic ships, for a wide range of environmental and operational conditions.

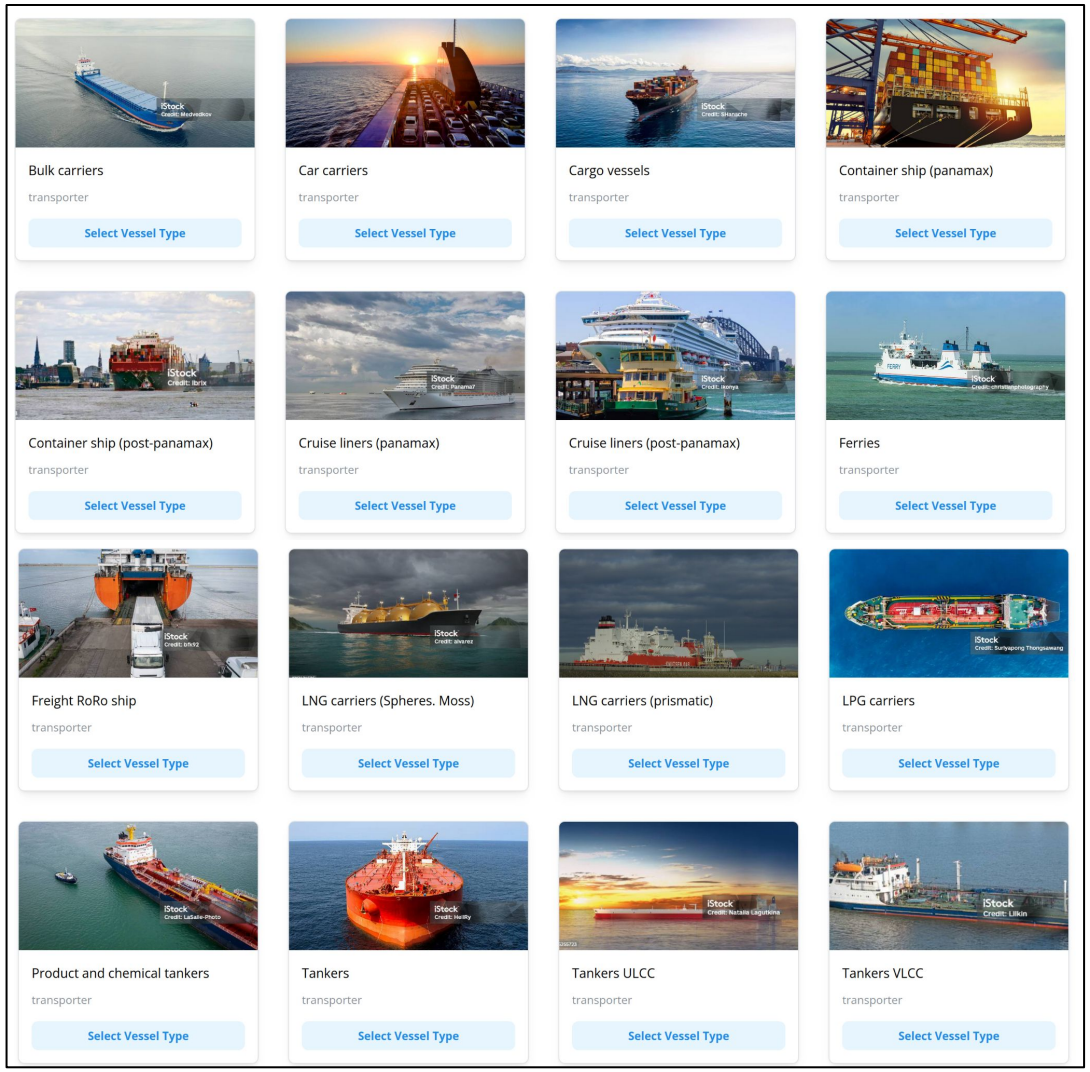


visualization of a ship performance polar table.

BrakePower (kW) evolution for STW = 13 kt WA = 45 deg and Hs = 3 m

SHIPLIFY

1. Select a vessel type among **16 different types**.



SHIPLIFY

1. Select a vessel type among **16 different types**.
2. Select a **vessel type.**

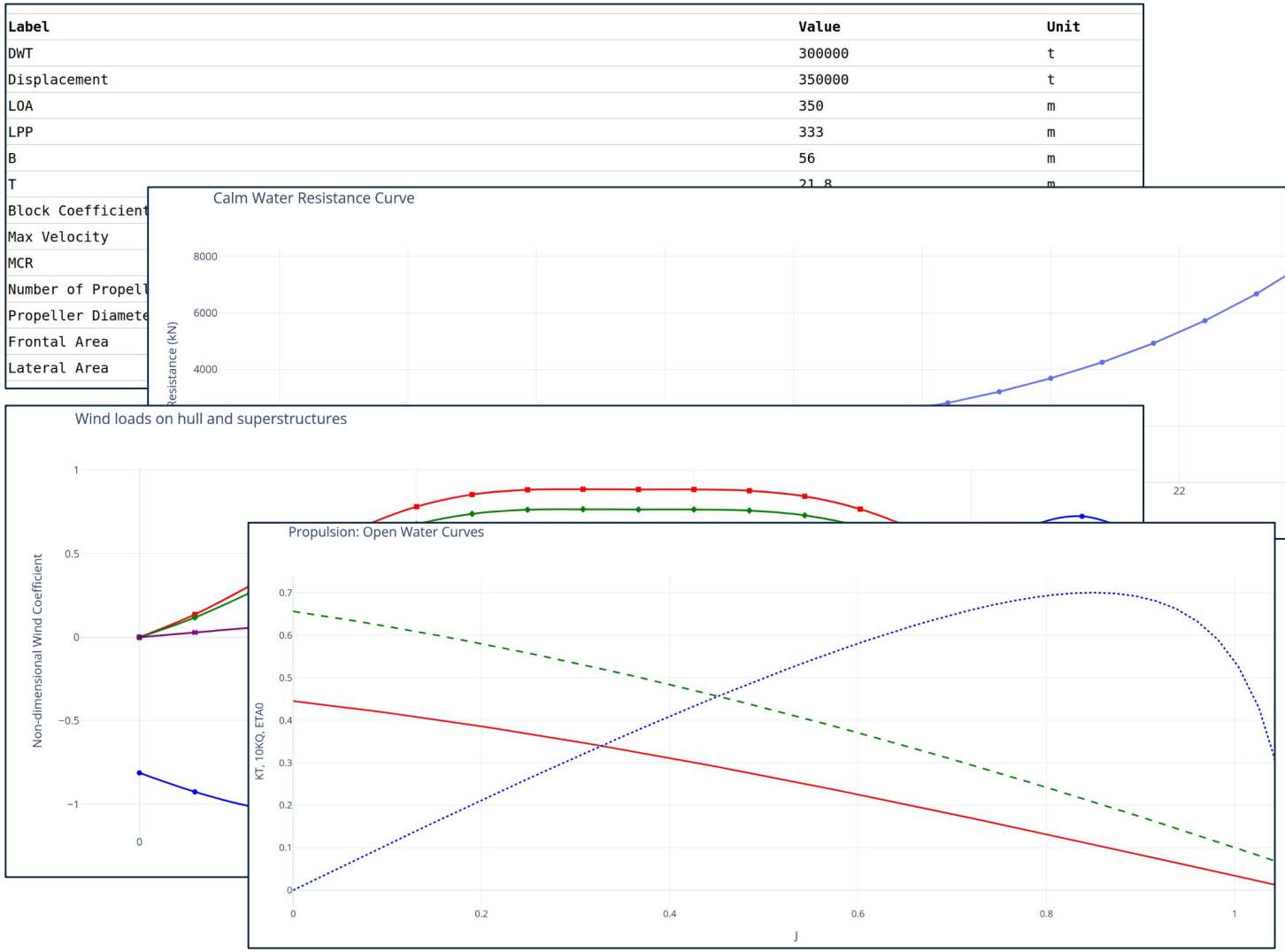
Vessel Type: Bulk carriers

DWT (T)	LOA (m)	B (m)	T (m)
400000	375	62.5	24
350000	362	59	23
300000	350	56	21.8
250000	335	52.5	20.5
200000	315	48.5	19
150000	290	44	17.5
125000	275	41.5	16.5
100000	255	39	15.3
80000	240	36.5	14
60000	220	33.5	12.8
40000	195	29	11.5
20000	160	23.5	9.3
10000	130	18	7.5

SHIPLIFY

1. Select a vessel type among **16 different types**.
2. Select a **vessel type**.
3. **Vessel particularity** are detailed

All datas modelling the digital twin are recalled

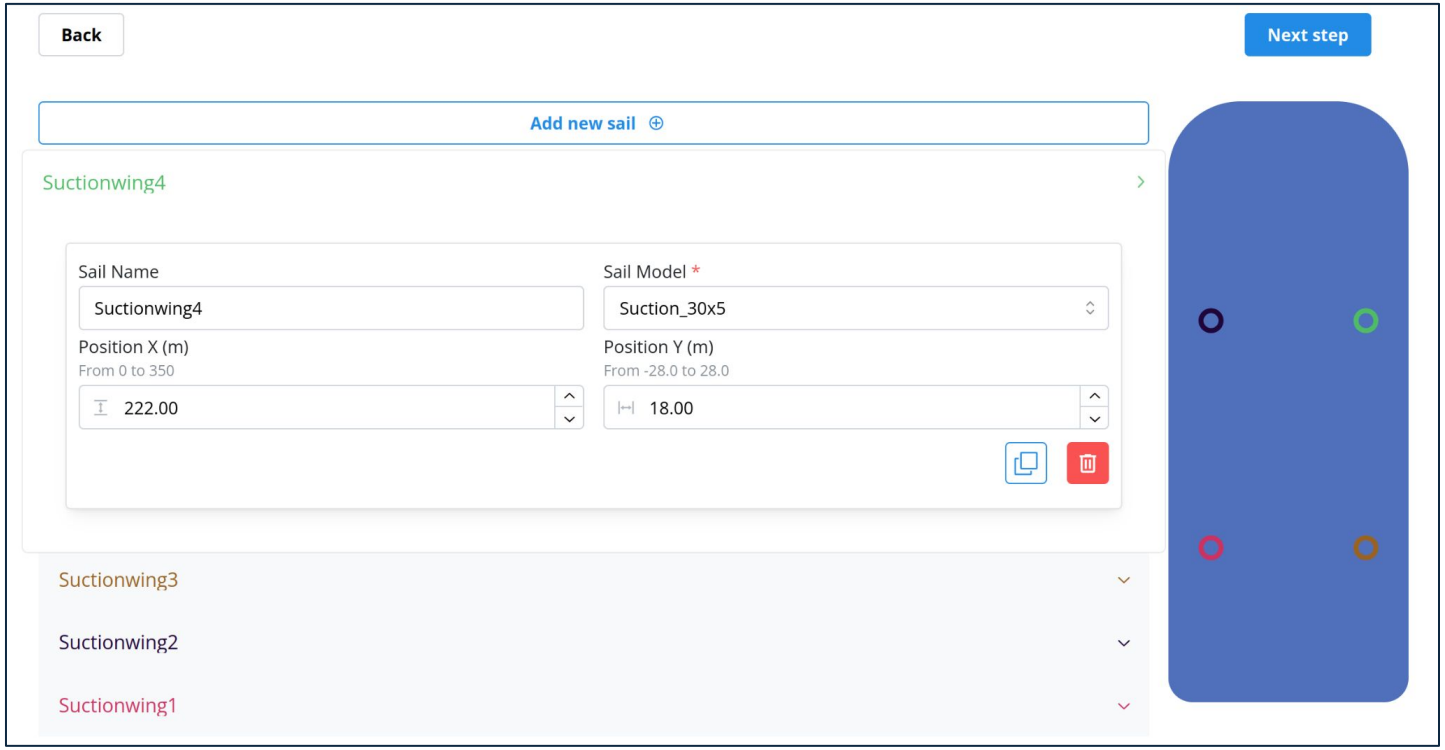


Label	Value	Unit
DWT	300000	t
Displacement	350000	t
LOA	350	m
LPP	333	m
B	56	m
T	21.8	m
Block Coefficient		
Max Velocity		
MCR		
Number of Propell		
Propeller Diamete		
Frontal Area		
Lateral Area		

SHIPLIFY

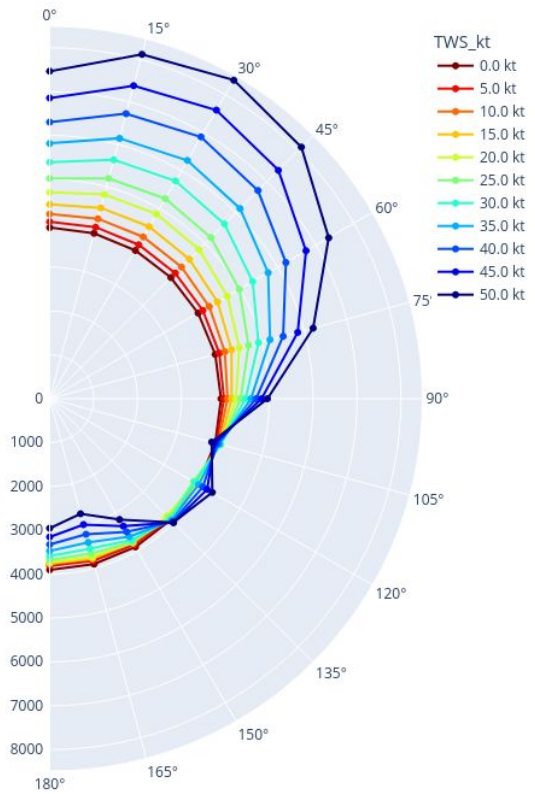
1. Select a vessel type among **16 different types**.
2. Select a **vessel type**.
3. **Vessel particularity** are detailed
4. Setup **wind propulsion** systems

- *sails can be added on deck*
- *Positions can be chosen*
- *3 different sail models :*
  - *Suction Wing*
  - *Flettner rotor*
  - *Symmetric sail*



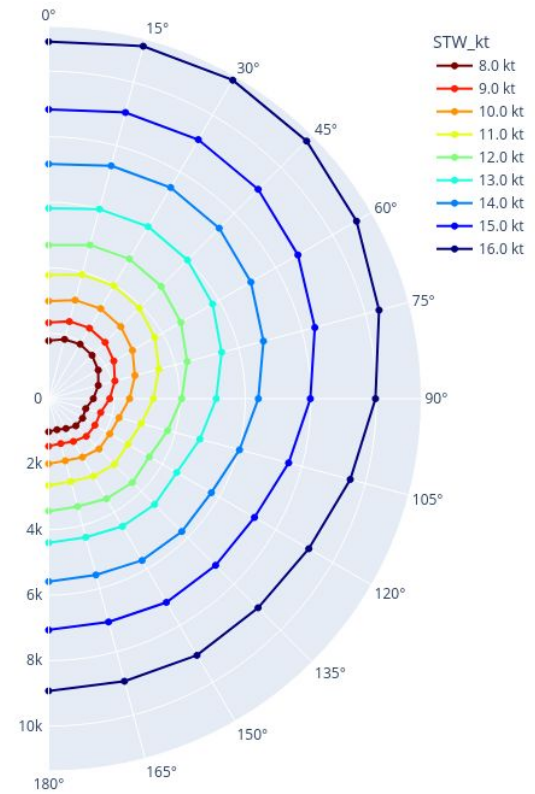
SHIPLIFY

1. Select a vessel type among **16 different types**.
2. Select a **vessel type**.
3. **Vessel particularity** are detailed
4. Setup **wind propulsion** systems
5. Get the vessels' 5 dimensions performance polar table



BrakePower (kW) evolution for STW = 13 kt

WA = 45 deg and Hs = 2 m



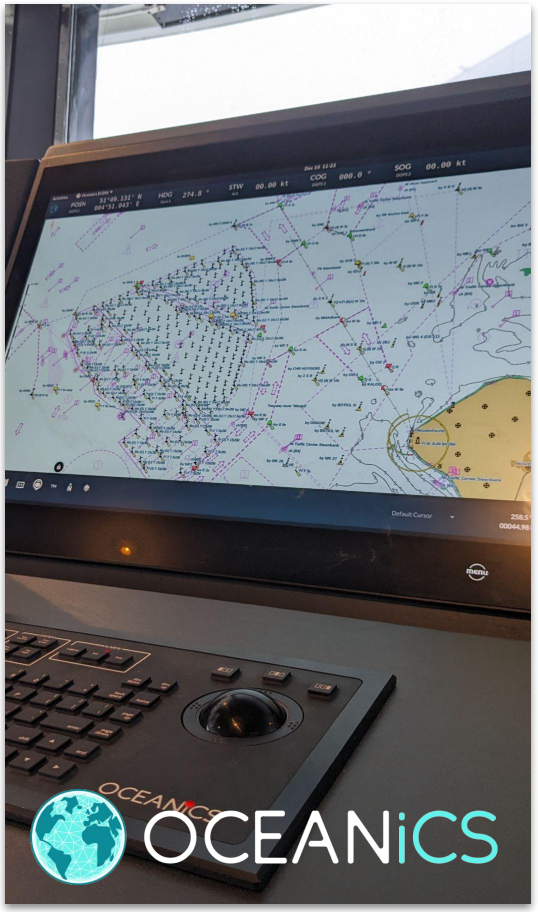
BrakePower (kW) evolution for TWS = 25 kt

WA = 45 deg and Hs = 2 m

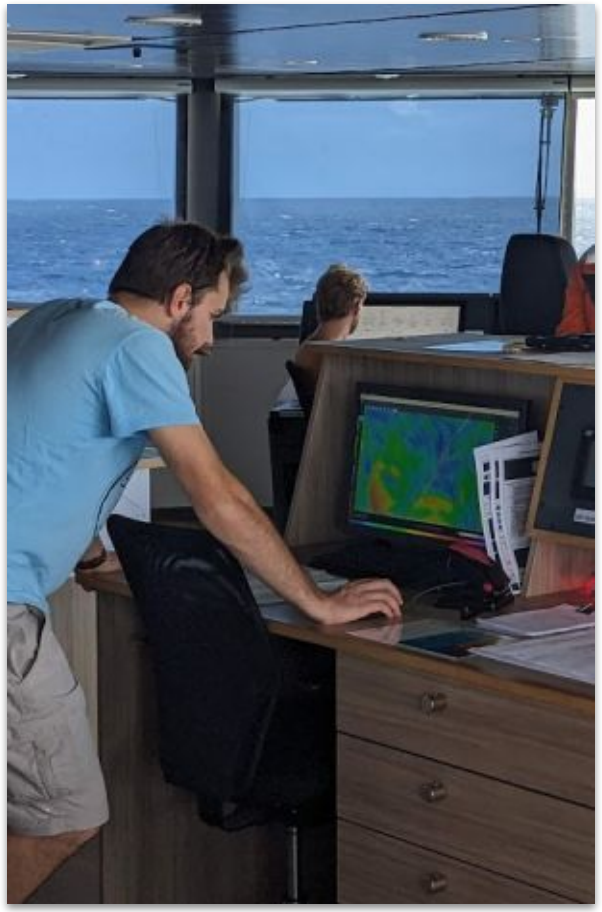
Achieve more with our OCEANICS system

Port et navigation

PLAN



OPTIMISE



EXECUTE

ANALYSE

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