

SeaPlanner - Voyage Planning



Objective

SeaPlanner enables the navigator to plan a route with minimum fuel consumption and at the same time avoid unacceptable weather conditions and ship motions.

Key objectives are:

- Optimised route
- Optimised speed along the route
- Optimised propulsion plant operation (number of engines in operation, WHR etc.)
- Avoidance of bad weather

SeaPlanner can be used as the only route planning and weather information tool. Alternatively it may be combined with the weather routing service provided by an experienced marine meteorologist at DMI - Maritime Service (a division of the Danish Meteorological Institute).

Main features

The main features of SeaPlanner are:

- Accurate high-resolution weather
- Advanced propulsion model (including added resistance in waves, added resistance due to shallow water, wind resistance etc.)
- Flexible propulsion plant model (multiple engines, fixed pitch or controllable pitch propellers, diesel electric, WHR etc.)
- State of the art route calculator (ETA, fixed RPM, fixed load, optimum speed)
- Fast route simulations including en route evaluation of wind, swell and wave encounters
- Advanced route optimisation
- Tracking with updated speed optimisation along route
- Extensive voyage evaluation
- User-friendly software setup
- Advanced wireless repeater display

Route planner

The weather and routes are presented on a globe which provides an intuitive interface to the weather data and the route planning functions.

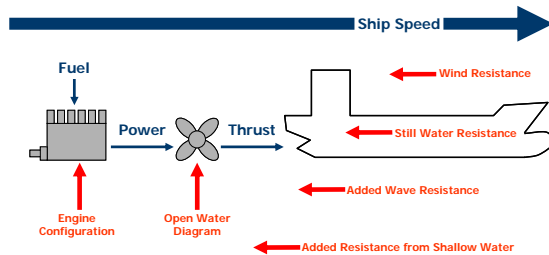


The operator can:

- Calculate routes as combinations of great circle and rhumb lines or let the system calculate the optimum route taking wind, waves and currents into account
- Select the optimum route based on operational criteria including: minimum en route time, fixed ETA and optimum fuel economy
- Perform easy comparison and evaluation of route alternatives
- Perform simulations of weather and route progress
- Access User-defined route library.

Propulsion model

The propulsion model includes all important parameters affecting the vessel during voyage.



- Still water resistance dependent on speed, draught and trim (based on semi-empirical model, model tests or sea trial data)
- Added resistance in waves (based upon semi-empirical model, seakeeping calculations or model tests)
- Added resistance due to shallow water (based on semi-empirical model, advanced CFD calculations or model tests)
- Wind resistance from database data or wind tunnel tests
- Propeller characteristics for fixed or controllable pitch (based on semi-empirical model or on propeller open-water diagram)
- Engine configuration (Single engine setup, multiple engines, diesel electric, WHR, etc.).

Further information:

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Weather data

The weather data is provided by the Danish Meteorological Institute, DMI, who is a leading provider of weather routing services. The high-resolution global data are verified and acknowledged to be the best and most reliable data available.

- Weather forecast up to 10 days ahead – updated one to four times a day
- Selectable weather grid resolution from 0.1 degree to 5 degrees
- Time resolution 1-24 hours
- Weather forecast parameters: pressure, wind, waves, swell, current, freak wave index, ice limits, hurricane track
- Weather data is retrieved automatically by the system via e-mail.

Weather routing

DMI - Maritime Service is a division of the Danish Meteorological Institute located in Copenhagen. Maritime Service offers global meteorology and oceanography services 24 hours a day for the shipping industry worldwide.

The highly skilled staff provides professional advice based on state of the art forecasting technology and qualified risk assessment. In cooperation with the Ship Masters, DMI - Maritime Service optimise the routing of vessels with respect to economy and safety.

Behind SeaPlanner

The SeaPlanner has been developed as a cooperation between FORCE Technology and DMI - Maritime Service.

SeaPlanner is part of a product family with focus on fuel efficiency and safety. The other products are SeaTrim for selection of optimum trim, SeaTrend for performance monitoring of ships, and SeaSense for onboard heavy weather guidance.

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