

(Annex)

1. The features of the programs

The OCTARVIA programs are briefly described below.

(1) Program for onboard monitoring data analysis (SALVIA-OCT.-web)

- Enables users to obtain ship propulsion performance (relationship between ship speed, engine speed, and engine output) in calm seas and designated weather conditions by implementing data filtering and winds and waves correction for onboard monitoring data.
- Enables highly objective and consistent analysis of ship monitoring data through quality assessment.
- Enables the assessment of fouling and aging deterioration effects based on performance evaluation results in calm seas.
- Enables the use of analysis results for calm seas as input for OCTARVIA-web.

(2) Program for estimating ship lifecycle fuel consumption (OCTARVIA-web)

- Enables economic evaluations of ships and energy-saving technologies based on lifecycle fuel consumption.
- The world's most accurate estimation model for actual seas is implemented, enabling not only EEXI (Energy Efficiency Existing Ship Index) and CII (Carbon Intensity Indicator) assessments for individual ships, but also analysis of external force impacts during operation and evaluation of operational plans such as routing and maintenance schedules.
- Enables users to utilize estimation results for external forces as input for SALVIA-OCT.-web.
- Allows calculations to be performed using results from EAGLE-OCT.-web as input.

(3) Program for providing ship form and ship performance data from the principal dimensions (EAGLE-OCT.-web)

- Enables the estimation of the waterline form, cross section data, and specific fuel oil consumption of alternative fuel, from the ship type (select from container ship, pure car carrier, bulk carrier, and tanker) and principal dimensions. These data are required for the input of SALVIA-OCT.-web and OCTARVIA-web.
- Enables shipping companies to evaluate ship performance in actual seas without requiring detailed hull data.

2. "Mitsubishi Shipbuilding Power Prediction & Lines Selection" system (MiPoLin®)

MiPoLin® enables efficient estimation of propulsion performance and generation of hull forms by leveraging Mitsubishi Shipbuilding's extensive towing tank test database, along with the experience and expertise accumulated through shipbuilding. It is useful for initial ship design and performance evaluation.

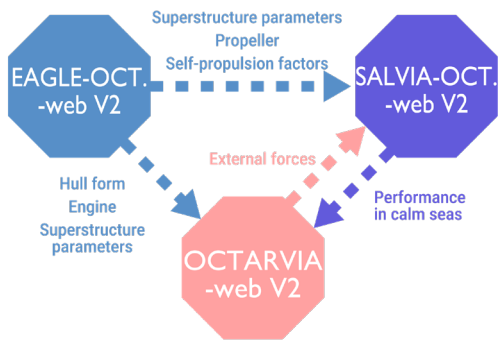
- By entering the principal particulars of the target ship, the system automatically searches the database for similar "Type Ships" (representative hull forms and performance serving as the basis for the design) and accurately estimates propulsion performance based on tank test data.
- A hull form corresponding to propulsion performance based on the principal particulars of the target ship is generated from the Type Ship by the system, and a Body Plan (drawings showing the ship's cross-sectional shape from the front and side), a Cp Curve (a curve representing the characteristics of the ship's underwater shape, which affects efficiency and speed), hull offset data, and CAD data are output. All of these can be utilized in actual design projects.

3. Integration of the programs

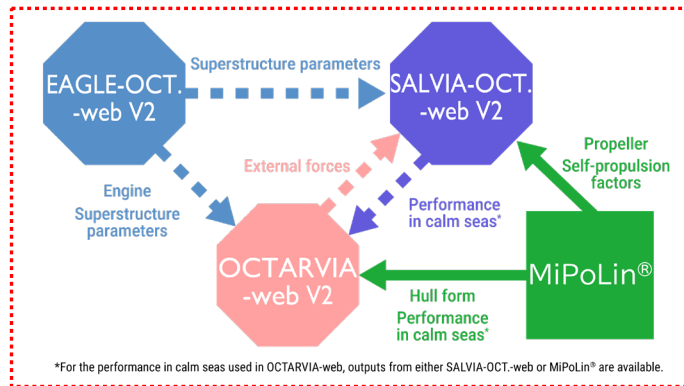
In OCTARVIA2, which focused on the social implementation of results from Phase 2 of the OCTARVIA project, a procedure was developed (see figure below, left) to use EAGLE-OCT.-web to estimate hull geometry and hull performance data in a simplified formula, and to utilize these estimates as input for OCTARVIA-web and SALVIA-OCT.-web.

Through integration with MiPoLin, it is now possible to replace many of the items estimated by EAGLE-OCT.-web with MiPoLin®'s output, enabling shipping companies and others to conduct more accurate lifecycle fuel consumption estimations and analyses of onboard monitoring data.

Using only OCTARVIA programs



Integration of OCTARVIA programs with MiPoLin



Procedure of onboard monitoring data analysis and estimation of ship lifecycle fuel consumption

(left: using only OCTARVIA programs, right: collaboration between MiPoLin® and OCTARVIA programs)

4. Use of the programs

Detailed information for OCTARVIA programs can be found at the following website.

<https://cloud.nmri.go.jp/portal/pub/top>

Detailed information for MiPoLin® can be found at the following website.

<https://www.mhi.com/business/products-services/ships-ocean/shipbuilding-engineering/power-prediction-lines-selection-mipolin>

<Contact address>

Public Relations Office, Planning Department,
National Maritime Research Institute,
National Institute of Maritime, Port and Aviation
Technology
Tel: +81-422-41-3005 Fax: +81-422-41-3258
E-mail: info2@m.mpat.go.jp
URL: <https://www.nmri.go.jp/>

Corporate Communication Department
Mitsubishi Heavy Industries, Ltd.
Email: mediacontact_global@mhi.com
URL: <https://www.mhi.com/>