

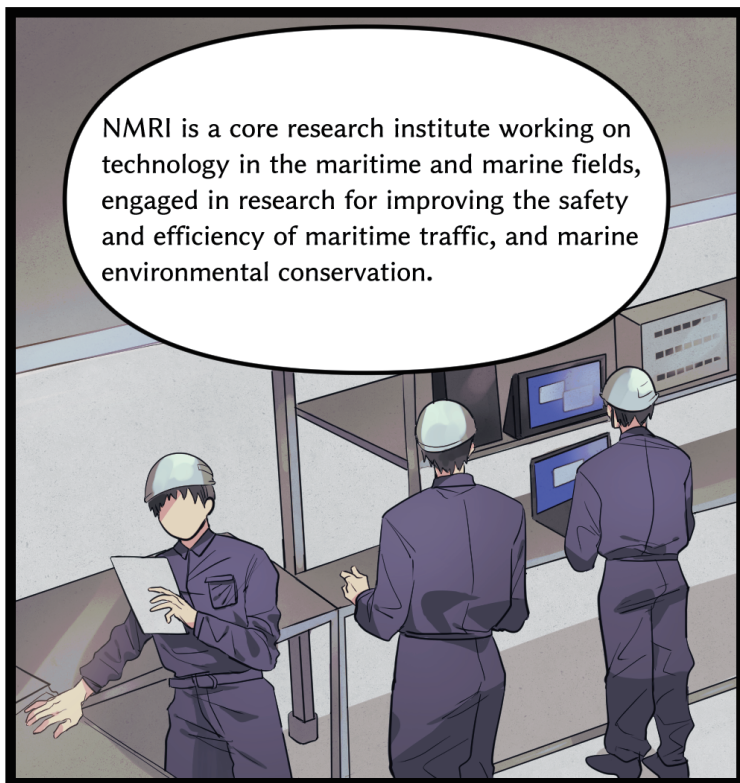
# Ship performance evaluation on actual seas

POLARIS

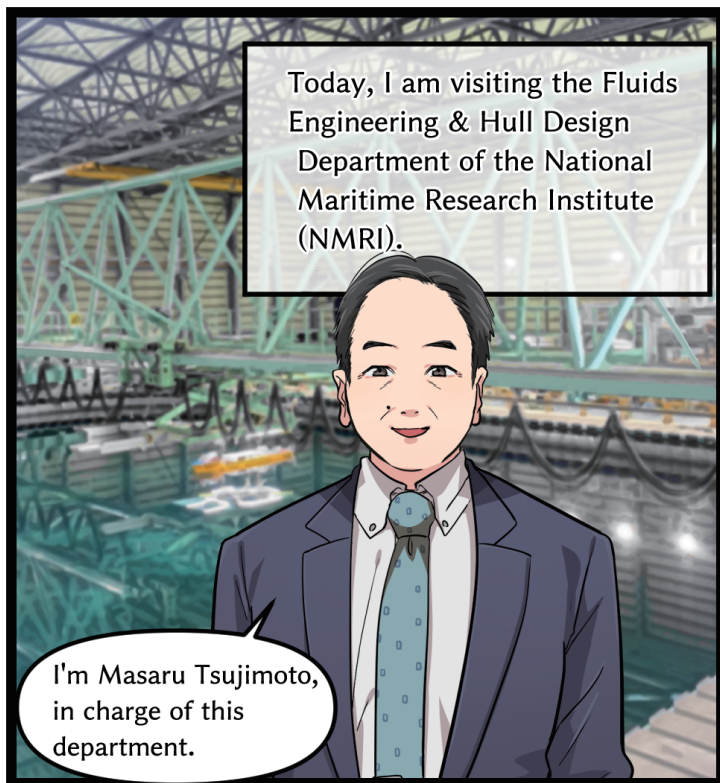
Precise  
Ocean  
data  
LibrARy  
and  
Intelligent  
Service





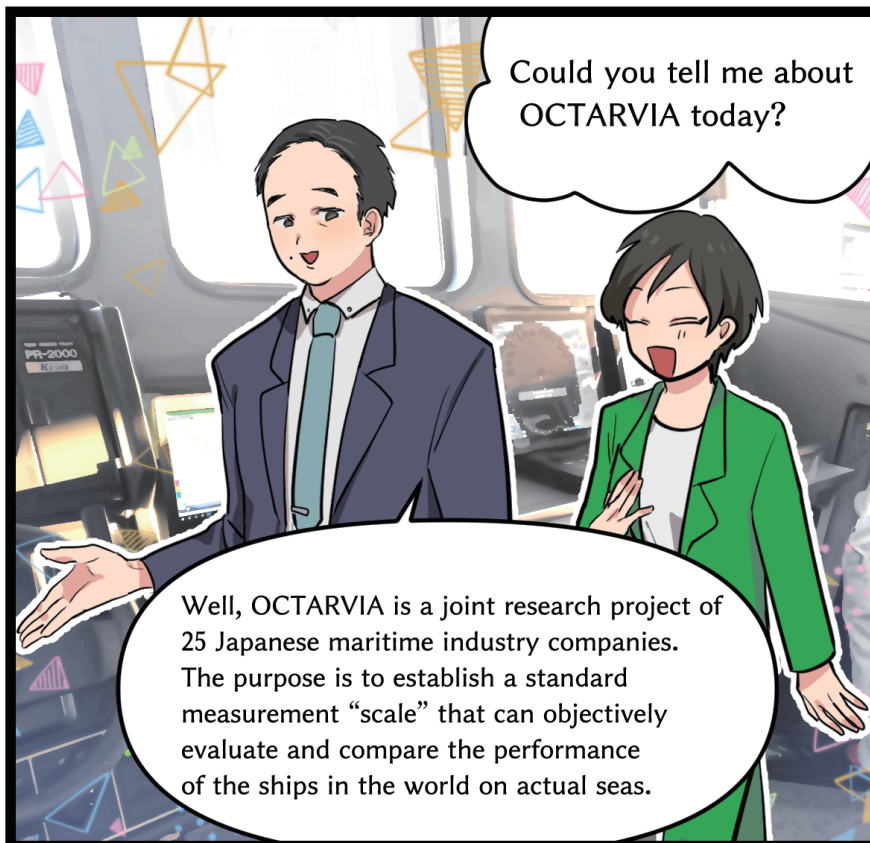


NMRI is a core research institute working on technology in the maritime and marine fields, engaged in research for improving the safety and efficiency of maritime traffic, and marine environmental conservation.



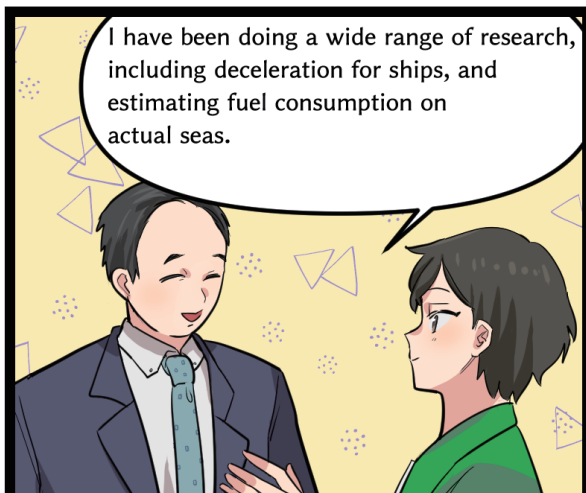
Today, I am visiting the Fluids Engineering & Hull Design Department of the National Maritime Research Institute (NMRI).

I'm Masaru Tsujimoto, in charge of this department.



Could you tell me about OCTARVIA today?

Well, OCTARVIA is a joint research project of 25 Japanese maritime industry companies. The purpose is to establish a standard measurement "scale" that can objectively evaluate and compare the performance of the ships in the world on actual seas.



I have been doing a wide range of research, including deceleration for ships, and estimating fuel consumption on actual seas.

#### OCTARVIA project

##### Purpose of the project

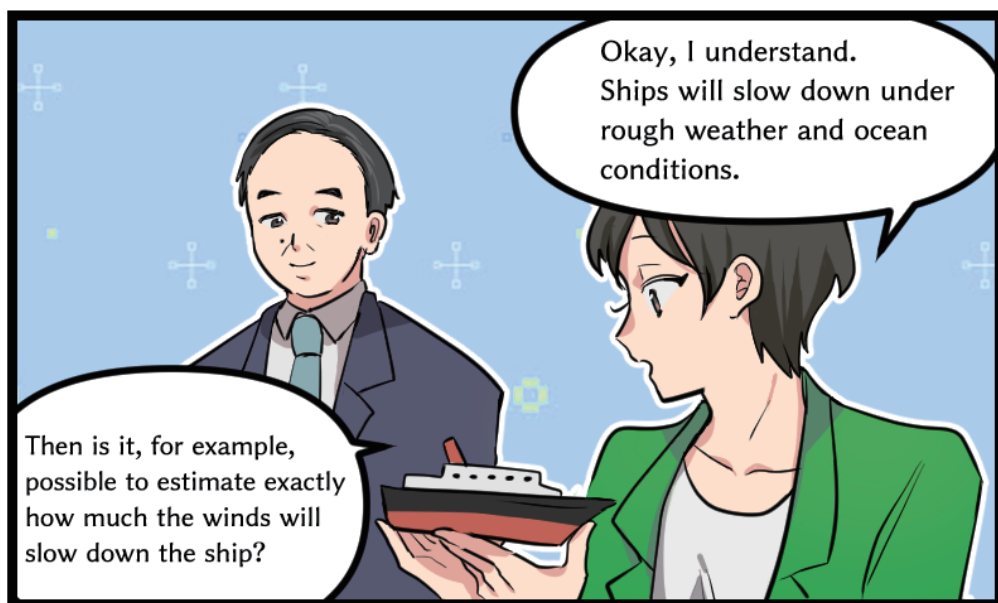
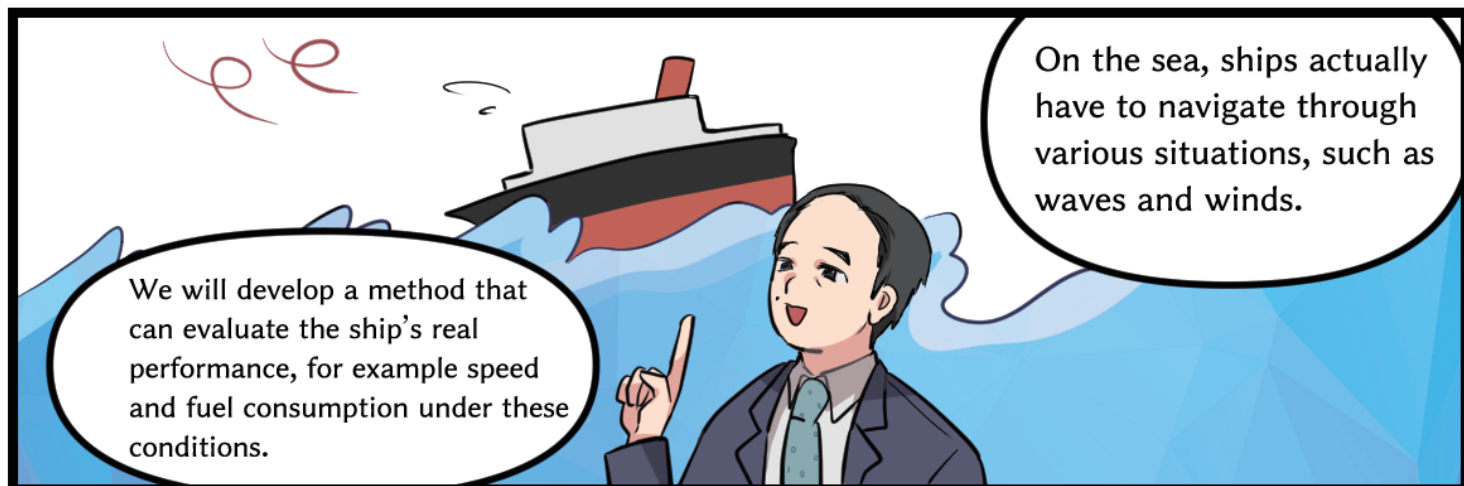
To develop a method for evaluating the ship's performance, such as speed and fuel consumption on actual seas with the effects of waves and winds.



I have been in charge of the OCTARVIA project over the past few years.



"Scale" on actual seas?



**S1** 実海域における実船性能モニタリング手法の構築

実運航データをベースにした性能評価

運航フェーズ

実船モニタリングデータ解析  
新たなモニタリング計測手法

**S2** 実海域性能推定手法の構築

CFD (風・波)

波浪中抵抗増加

波浪中自航要素

水槽試験技術／計算技術

曳航水槽

設計フェーズ

実海域再現水槽

**S3** 実海域性能評価手法の確立

多様な気象海象での実海域性能の提示方法

運航モデルでの燃料消費量評価法の検討  
船主等に対する実海域性能の提示方法

船舶の実海域性能を客観的に評価できる「ものさし」の確立

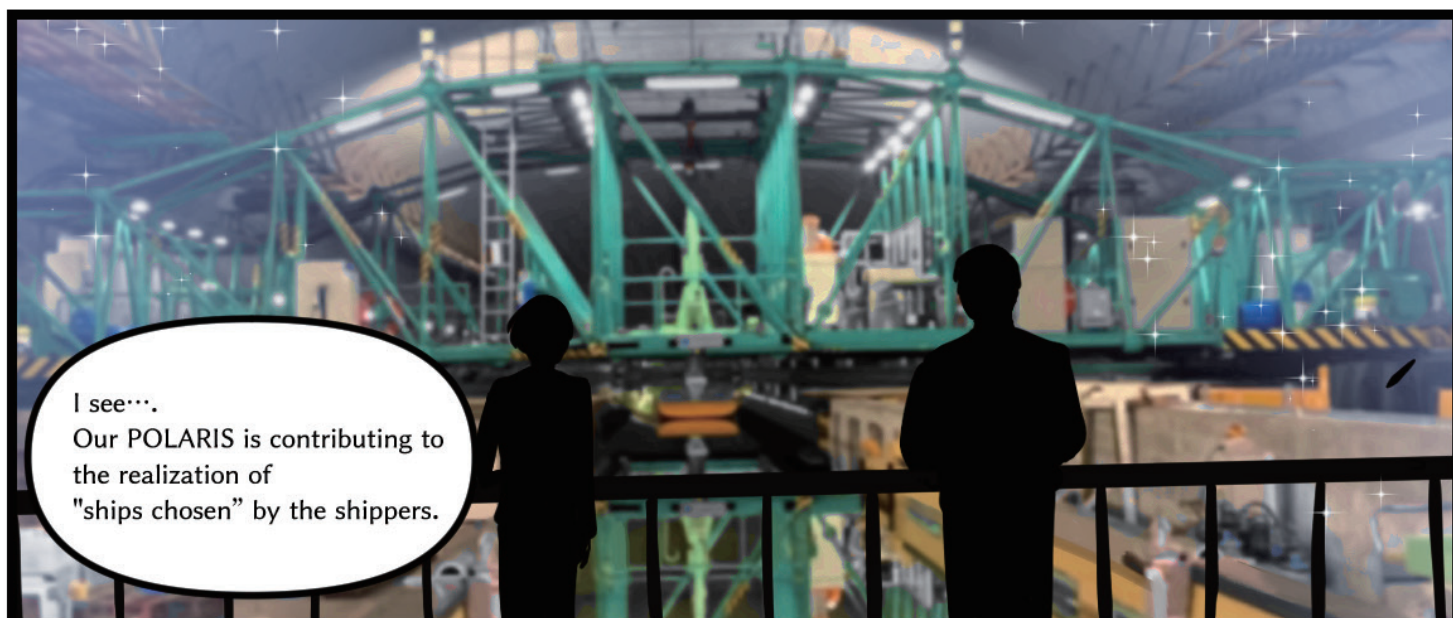
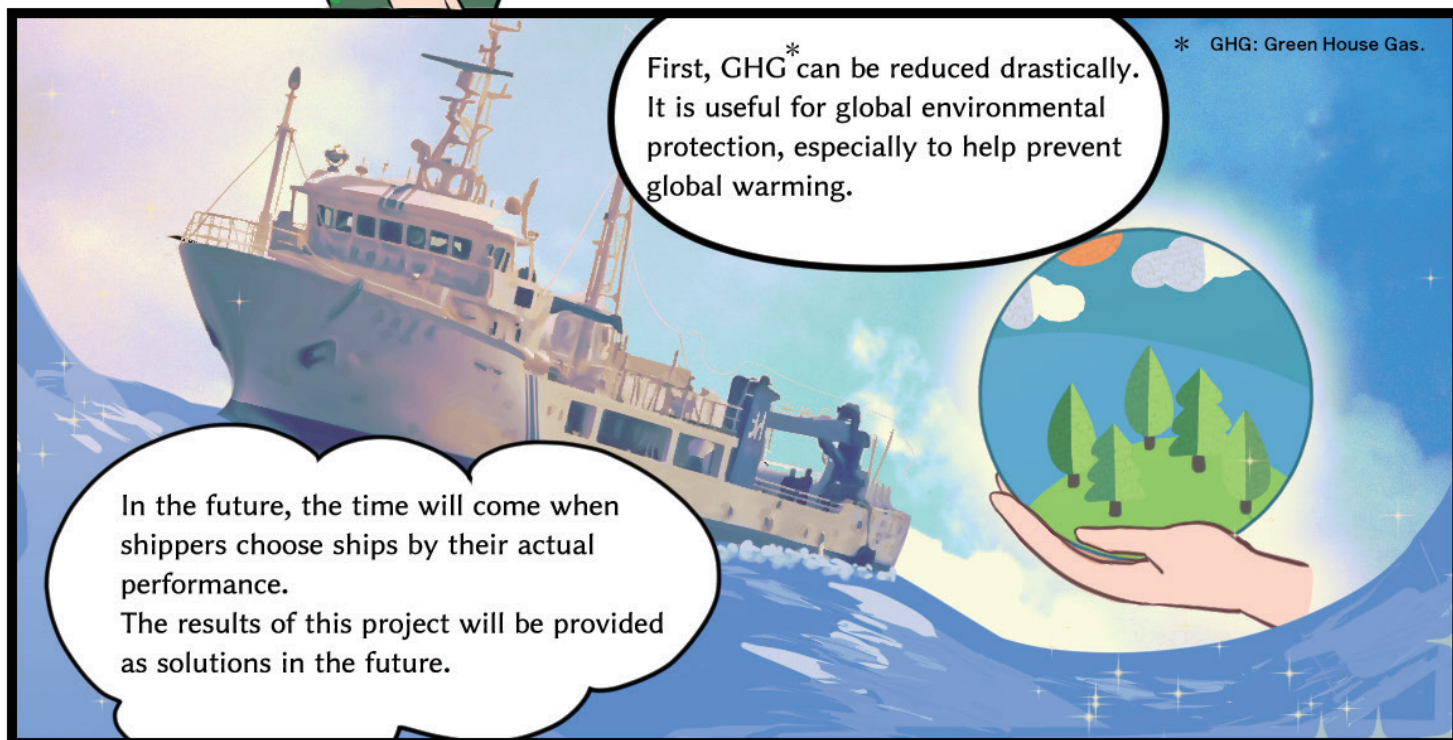
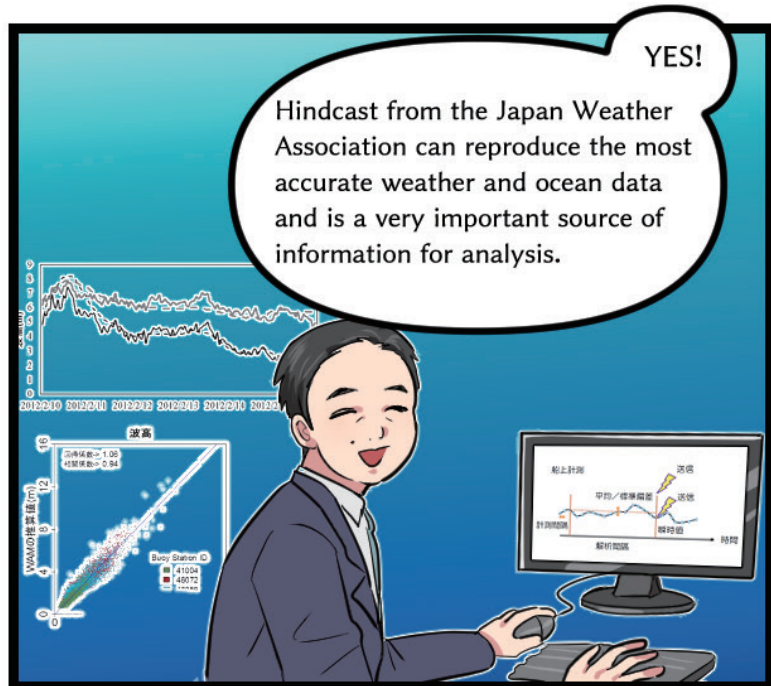
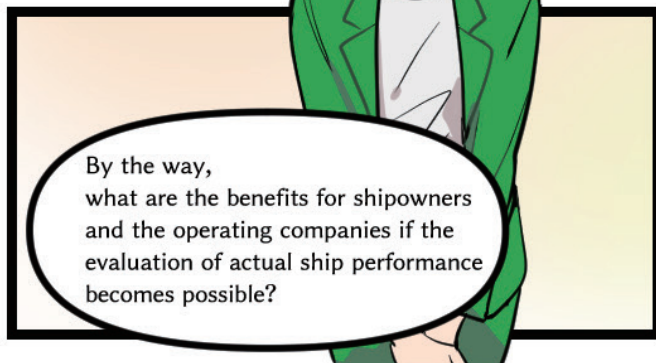
We developed standard methods to analyze ship monitoring data and to evaluate the ship performance on actual seas.

And now OCTARVIA can objectively evaluate the operational ship performance, which was difficult before.

Japan Weather Association's Hindcast\* has been used to provide weather & ocean data for that evaluation, hasn't it?

\*Hindcast: Most probable re-calculated past weather & ocean data.









Dr. Tsujimoto lectures on:

# How POLARIS® contributes to ship performance evaluation on actual seas



## The time will come when “ships are chosen”

IMO (International Maritime Organization) is aiming for zero GHG emission as early as possible in the 21st century, and the industry is intensifying its discussion on GHG reduction strategies. To achieve this goal, the ships that received higher evaluation on GHG reduction will have more value.

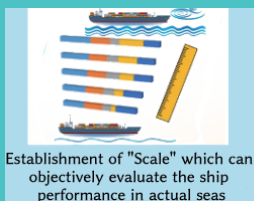


## What is OCTARVIA project ?

Organized by Japan's 25 maritime companies



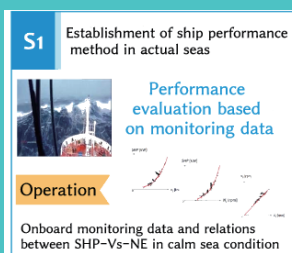
It's a joint research project to develop a method to evaluate the ship performance correctly such as speed and fuel consumption in the actual navigation conditions against waves and winds. The project has established a standard scale to objectively evaluate and compare the ships in the world with similar accuracy. The Japan Weather Association's POLARIS® Hindcast is contributing to this project, by providing the most accurate data of weather and ocean on the actual sea area.



## Project activities, more details

As to actual ship performance,

- 1) Construct a monitoring method (see the figure below)
  - 2) Construct an evaluation method
  - 3) Establish an evaluation method.
- We have developed an index of the "Life cycle fuel consumption" as a standard scale to objectively evaluate actual ship performance under various weather and ocean conditions.



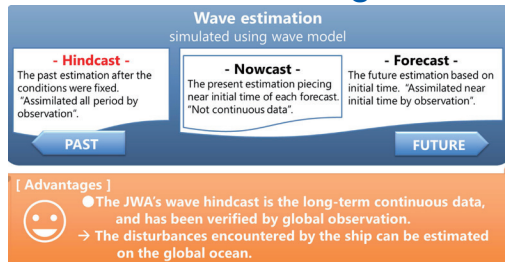
Dr. Tsujimoto  
Department Director  
of NMRI.



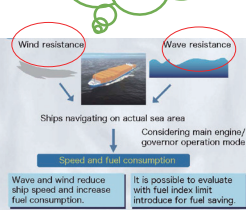
## Actual performance analysis needs Hindcast data

POLARIS® Hindcast can provide precise continuous weather and ocean data on the globe. At any place and any time, even in the sea area where observation data is scarce. It also supports the VESTA format, NMRI's actual navigation performance simulation software, and the analysis can be easily and smoothly performed.

## What is Wave Hindcasting ?

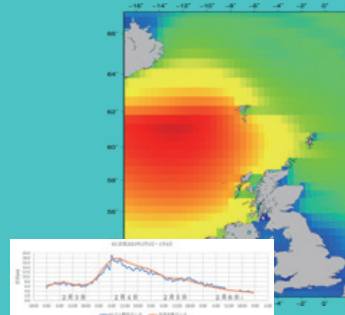


It supports  
VESTA !



## Hindcast Accuracy - High Waves Reproducing world record high wave

Hindcast can even produce high waves accurately and is very useful to understand the navigation conditions and external forces necessary for design.



## POLARIS® will support that your ships will be chosen

POLARIS® Hindcast provides continuous weather and ocean data on the globe for a long period of time. The high-quality data is globally verified. It also supports VESTA, and the data can be directly admitted for your ship performance evaluation. If you need more detailed data, we can provide wave spectrum data too. Please contact us.

\* POLARIS is a registered trademark of the Japan Weather Association (Number: 6270341)

Contact >>>



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Precise Ocean data LibRARY and Intelligent Service