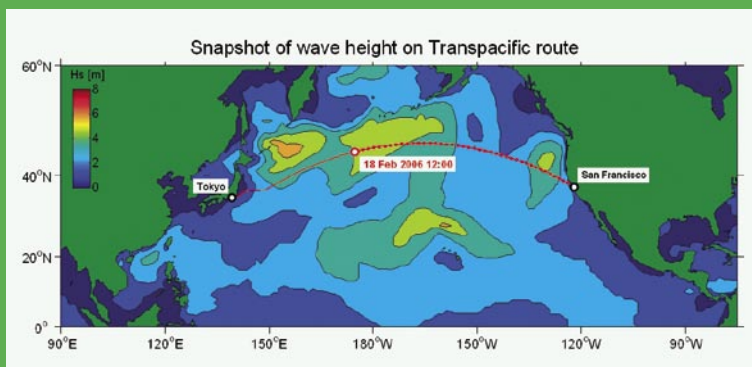


Economy, GULLIVER's new travel



Although available since 2001, GULLIVER is for the first time being commercially utilised as a financial tool. Now it is much easier to make sound investment decisions and weigh up costs versus their impact on seakeeping.

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Named after Jonathan Swift's Gulliver's Travels, GULLIVER like another MARIN simulation tool SAFE-TRANS, evaluates behaviour along a route in small time steps, accounting for the actual weather conditions and the way the crew reacts.

"What will be the economical benefit of design alternatives?" and "What will be the payback period of a higher forecastle or an anti-roll tank?" are typical of the questions that GULLIVER can now answer. Obviously, these design changes will result in less water on deck and lower roll motions but they also require extra investment.

Previously, an answer such as "the alternative with the higher forecastle has a 12% lower downtime"

would have been provided. Here, a shipowner knows that this will increase the operability, however, the answer does not provide information on if the investment will actually pay-off. Voyage simulations provided by GULLIVER, do and can help give the vital information needed to make a decision based on investment levels and their effect on seakeeping.

Contrary to the Workability Analysis of Ships and Constructions Offshore (WASCO) statistical tool, released in 1991, voyage simulations are able to determine the trip duration and fuel consumption levels. GULLIVER is able to establish the reliability of a ferry or container service for instance. Rather than a typical question such as: "What is the fraction of in-time voyages or what will be the number of voyages which are seriously affected by the weather?" GULLIVER can answer the more intriguing question: "What should be the sea margin in order to make 98% of the voyages in time?"

For practical reasons, the evaluation of sustained speed and behaviour in each step of the simulation is based on a database with linearised transfer functions that describe the motion characteristics and added resistance. This leads to problems because several aspects of limiting ship behaviour are rather "non linear".

Elements in the master's reaction on actual and anticipated circumstances include the weather forecast and its accuracy, the forecasted or expected ship behaviour, the vulnerability of ship and cargo and the value of a timely arrival. Obviously, a realistic account of these elements requires a careful analysis of existing trips, so it is very important to get feedback from the ships in order to enhance simulations.