

Onboard decision support systems based on mathematical and data-driven models for predicting vessel response during marine operations in realistic conditions

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Research Topics

- Pursuing integration of realistic metocean conditions (corrected forecasts/observations) to mathematical models for predicting the operational behaviour of vessels in real environment, both in short range and long range.
- Achieving optimal real time response evaluation through blending vessel's sensor measurements into models.
- Using state-of-the-art data-based algorithms for estimating vessel's futuristic response from historical data.

Industrial Goal

- Rapid and dependable predictive simulations on board for studying vessel's operational characteristics both in real time and in future.
- Identification of critical situation beforehand for certain acute operations.
- Deducing essential intelligence from the support systems for making pivotal and flexible decisions.

Scientific Questions

- Quantification of uncertainties inherent in weather forecasts using probabilistic & oceanographic methods; Application of satellite and insitu observations for yielding reliable environmental forecasts.
- Utilisation of cloud based data storage, data transfer & computing.

Innovations

- Employment of cutting edge machine learning, deep learning, bigdata, IoT & cloud architectures in vessel response prediction.

