

## A Fundamental Study of Wind Loads on Vessel by CFD

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### ABSTRACT

Since a ship is built, a sea trial is conducted on quay side or at sea to evaluate its performance. In the case of a sea trial conducted on sea, unlike towing tank test where there are no environmental loads such as wind, current, and waves, there are various environmental load.

So, we should correct the measurement speed. In the case of wind load correction, the wind speed and direction are measured using an anemometer, and the resistance is calculated using the wind load coefficient and area. Therefore, Wind load coefficient is one of the important factors for estimating ship speed. Normally the wind load coefficients are calculated through wind tunnel test and however recently CFD is widely applied (Grlj et al. 2023, Dao et al. 2023). Therefore, in this study, as a fundamental study on the wind load performance of ships, a numerical analysis of the wind load on a 160m class car-ferry was performed using CFD, and the results were compared with experiments and empirical formula to evaluate the applicability of CFD.

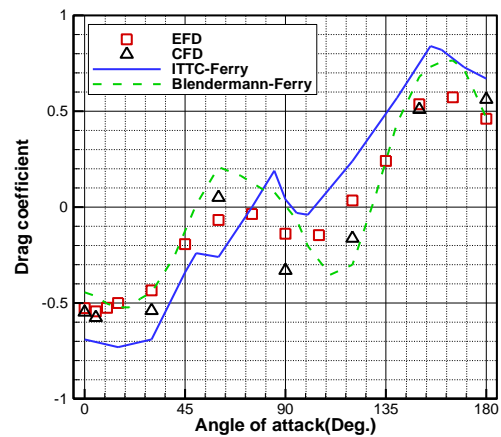


Figure 1: Results of numerical simulation

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