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Title

Verifikasi Deep-V Planing Hull Menggunakan Finite Volume Method Pada Kondisi Air Tenang

Abstract

Pengujian eksperimen menggunakan towing tank adalah salah satu cara yang digunakan untuk memprediksi hambatan kapal. Metode alternatif lain yang dapat digunakan adalah metode Computational Fluid Dynamics (CFD). Metode ini menjadi trend di industri maritime karena biaya pengujian eksperimen pada towing tank semakin mahal dan diikuti dengan perkembangan ilmu dan teknologi tentang mekanika fluida menggunakan metode Computational Fluid Dynamics (CFD) yang sangat pesat. Penelitian ini bertujuan untuk untuk memverifikasi performa kapal cepat menggunakan metode komputasi. Metode CFD yang digunakan untuk menyelesaikan permasalahan mekanika fluida ini adalah dengan menggunakan persamaan Reynolds-Averaged Navier-Stokes untuk menggambarkan model turbulensi dengan k- ϵ , dengan menggunakan aliran multiphase Euler yang diasumsikan air dan udara. Dynamic Fluid Body Interaction (DBFI) adalah modul yang mensimulasikan gerakan benda sebagai respon terhadap gaya yang diterapkan oleh kontinum fisika. DBFI heave dan pitch pada penelitian ini diasumsikan bergerak bebas untuk dapat menghitung gerakan kapal. Hasi penelitian ini menunjukkan bahwa CFD dapat membantu dalam memprediksi hambatan, trim dan kenaikan titik gravitasi.

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