Abstract

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“EFFECT OF INTERNAL GRIDS STRUCTURE ON THE NUMERICAL PREDICTION OF THE FREE SURFACE FLOW AROUND WIGLEY HULL FORM”

Two grids with different internal mesh structure have been used to predict the incompressible free surface flow around the Wigley hull form at Fr = 0.2 and 0.267. The finite volume RANSE code Ansys CFX, which using the two-phase Eulerian- Eulerian fluid approach has been used to perform the different numerical simulations. The Shear Stress Transport (SST) turbulence models have been used in the RANSE code. Ansys Meshing and ICEM CFD grid generators have been used to generate the two unstructured tetrahedral grids for this study. The results compare well with the available experimental data for the hull resistance at the two speeds. In addition, wave patterns, pressure contours and the time required for the numerical simulations of the grids have been compared in this study.