



Contribution ID: 22

Type: Paper

PURE YAW SIMULATIONS OF FAST DELFT CATAMARAN 372 IN DEEP WATER

Friday, 16 October 2020 11:15 (30 minutes)

Abstract

Fast marine vehicles have become more important than ever before due to increasing need and population. In maritime sector, special ship types such as catamaran and trimaran have already been designed and/or built to the civil and naval areas of use. The hydrodynamic performance of these vessels is an interesting problem for naval architects due to the wave interference between the hulls. From this point of view, a generic high-speed catamaran hull form (Delft catamaran 372 or DC372) has been chosen for the numerical prediction of manoeuvring coefficients. To achieve this, the pure yaw captive manoeuvre simulations of the DC372 have been performed in deep water conditions for two different advance speeds by using CFD method. The unsteady RANS equations have been solved under incompressible, viscous and fully turbulent flow conditions. The uncertainty in the computations has been determined using proper techniques. Manoeuvring coefficients have been calculated by processing time dependent force/moment signals obtained numerically with the help of Fourier analysis. It is found that the manoeuvring coefficients of fast catamaran are highly dependent on the advance speed.

Keywords: CFD, Pure yaw, Delft catamaran, Dynamic manoeuvre.

Primary authors: DUMAN, Suleyman (Yildiz Technical University, Department of Naval Architecture and Marine Engineering, Istanbul, Turkey); Prof. BAL, Sakir (Istanbul Technical University, Department of Naval Architecture and Marine Engineering, Istanbul, Turkey)

Presenter: DUMAN, Suleyman (Yildiz Technical University, Department of Naval Architecture and Marine Engineering, Istanbul, Turkey)

Session Classification: Multi Hull Hydrodynamics

Track Classification: Seakeeping, Hydrodynamics