



Published on *CD-adapco* (<http://www.cd-adapco.com>)

[Home](#) > Maneuvering predictions in the early design phase using CFD generated PMM data

Maneuvering predictions in the early design phase using CFD generated PMM data



The present paper covers the work made in order to be able to perform standard deep water IMO manoeuvring simulations based on a combination of computed and measured hydrodynamic input data. Based on a full set of measured PMM data a reduced test matrix was identified and the standard 10-10 and 20-20 zigzag and the 35 turning circle manoeuvres was simulated. Based on the reduced test matrix all the static PMM conditions were computed with the RANS code STAR-CCM+ in order to obtain the hydrodynamic forces and moments. The computed static PMM data was subsequently used to replace the corresponding measured static PMM data in the simulations. Comparison between the computed and measured forces and moments showed a quite good agreement. Formal verification and validation, taking numerical and experimental uncertainties into account, was made for a selected condition. The result showed that the X-force is validated, while the Y-force and the yaw moment are not. For the simulated manoeuvres, the results also look promising, since reasonable good agreement was found when comparing the simulated turning circle and zigzag manoeuvres, obtained with measured and computed input data.

Author Company:

FORCE Technology, Denmark and IIHR, University of Iowa , USA

Author Name:

Claus D. Simonsen

Janne F. Otzen

Christian Klimt

Nikolaj L. Larsen

Frederick Stern

Industries:

Products:

Conference:

CD-adapco is the world's largest independent CFD focused provider of engineering simulation software, support and services. We have over 30 years of experience in delivering industrial strength engineering simulation.

Source URL: <http://www.cd-adapco.com/presentation/maneuvering-predictions-early-design-phase-using-cfd-generated-pmm-data>

Links:

[1] http://www.cd-adapco.com/sites/default/files/Presentation/SimonsenC_ONR_paper.pdf