



Contribution ID: 31

Type: Paper

## An Overview of Stepped Hull Performance Evaluation: Sea Trial Data vs Full Scale CFD Simulations

*Thursday, 15 October 2020 10:15 (30 minutes)*

It is well known that the dynamic of the stepped hull in real scale is rather complex and it's not easy to predict that using empirical or mathematical approaches, and by numerical and experimental way as well. Moreover, there is huge lack in literature of data related to sea trials of stepped hull. Furthermore, the reliability of full-scale CFD simulations is not widely proven and validated especially for high speed and planing hull. For these several reasons, in this paper the authors are focused in the comparison of the results carried out from model experimental tests performed in model basin, model CFD Simulation, full-scale CFD simulations at the and sea trial data.

The performed simulations in model-scale have been compared to tank tests for validation purposes and, after, the full-scale simulations results have been compared to the scaled experimental tests and to the sea-trial results. A specific analysis is dedicated to the resistance components, in particular residuary resistance and friction resistance. The two resistance components, derived from CFD analysis, are compared to the calculated values using the International Towing Tank Conference (ITTC) formulas, and critical analysis was performed. The Stepped Hull considered is a Mito 31 outboard Rigid Inflatable Boat (RIB) built by MV Marine Srl Company.

**Primary authors:** Dr VITIELLO , Luigi (University of Naples "Federico II"); Dr MANCINI, Simone (Force Technology); Dr BILANDI, Rasul Niazmand (Persian Gulf University); Dr NAPPO, Vincenzo (MV Marine S.r.l.)

**Presenters:** Dr VITIELLO , Luigi (University of Naples "Federico II"); Dr MANCINI, Simone (Force Technology)

**Session Classification:** CFD/EFD/Sea Trials 1

**Track Classification:** Seakeeping, Hydrodynamics