



Contribution ID: 35

Type: Paper

## Full-scale propulsion measurements on a planing pleasure yacht in head sea

*Friday, 16 October 2020 14:30 (30 minutes)*

Full scale seakeeping trials are rare, especially for planing hulls, and are in general focused in studying bottom pressures, accelerations and vibrations. In this paper, a comprehensive description of the experimental setup and analysis of full scale seakeeping trials propulsion data of a 65 ft planing pleasure yacht is presented. Torque and rpm have been measured on both propeller shafts during seakeeping trials in mild sea conditions, along with hull motions and accelerations. Correlations between hull motions and propulsion data are discussed, both in the time and frequency domain. Further tests on a shaft sample have been carried out in order to validate its mechanical properties and hence quantitative results regarding shaft torque. The main novelty of the present work lays in a detailed analysis of the propulsion system response of a planing pleasure yacht in mild weather conditions.

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**Session Classification:** CFD/EFD/Sea Trials 2

**Track Classification:** Seakeeping, Hydrodynamics