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This paper describes author?s experience with numerical modeling of ship-propeller interaction using the CFD tools of STAR-CCM+. The two numerical approaches considered in the paper are presented by an *iterative viscous/potential coupled method*, where propeller effect in the main RANS solution is represented by an actuator disk model, which is coupled with an external panel method code for propeller analysis, and an *unsteady RANS method,* where interaction between the hull and propeller is resolved by a time-accurate Sliding Mesh procedure.

Detailed comparisons with experimental data done for the classical CFD benchmarking case of containership KCS demonstrate that both methods allow for an accurate prediction of self-propulsion point, forces acting on the hull and propeller, and propulsion factors.

The fully unsteady RANS method offers a more accurate and detailed (within the range of scales resolved by RANS) modeling of unsteady effects that influence hull-propeller interaction. The iterative viscous/potential coupled method is, on the other hand, seen as a faster design tool that provides, among other results, the information about effective wake field on propeller. This information is important for the improvement of procedures for wake-adapted propeller design, regarding dynamic blade loads, unsteady cavitation and pressure pulses on the hull.

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