

Abstract Submitted
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LES of propelled bodies in crashback¹ PRAVEEN KUMAR, KRISHNAN MAHESH, University of Minnesota — Crashback is an off-design operating condition to quickly stop a propelled vehicle by rotating the propeller in reverse direction, thus yielding a negative thrust. The interaction of the freestream with the strong reverse flow from the propeller creates massive unsteadiness and flow separation. This talk will discuss our work towards simulation of crashback flow over an entire hull using Large-Eddy Simulation (LES). The results will be compared to the available experimental data and the flow physics will be discussed. The flowfield of the hull-attached propeller in crashback will be analyzed using dynamic mode decomposition to understand the mechanism of the unsteady loads.

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