

Computational Fluid Dynamic Study of Heaving-to



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Abstract

This study looks at the fluid interactions from the wake of a sail boat performing the heaving-to storm tactic in heavy weather seas with the waves. This interaction causes the wave height in the wake to be reduced. The fluid flow in the top layer of the wave is seen to move with the

wake as the hull drifts with the wind. This movement of the top layer of the wave provides a vertical momentum cancellation affect with the portion of the wave that it moves over reducing the wave height.

STAR-CCM+ CFD software is used to perform the simulations of the steep waves with wavelength of 25 meters, 55 meters, and 67 meters. In the simulation, a propulsive force is used to simulate the wind force on the boat.

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