

Abstract Submitted  
for the DFD10 Meeting of  
The American Physical Society

**Simulations of the wake of an accelerating body** MATTHEW DE STADLER, SUTANU SARKAR, University of California San Diego — When a body moving under its own power maneuvers, momentum is transferred to the surrounding fluid. This transfer of momentum, even for relatively small values, is thought to significantly affect the wake dynamics. Direct Numerical Simulation (DNS) in a spatially evolving frame, a first study of this kind, in addition to the commonly used temporal approximation, was used to evaluate this hypothesis. The main objective is to characterize the time evolution of the self-propelled wake dynamics in the presence of a momentum imbalance in a stratified fluid. Statistics of interest include the defect velocity, wake dimensions, vortex dynamics, the presence or lack thereof of large eddies in the late wake, wake lifetime, internal wave dynamics and mean and turbulent kinetic energies and their associated budgets. Results from the spatially evolving case are compared with data from a temporally evolving case with excess momentum.

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Date submitted: 05 Aug 2010

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