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Numerical Simulations of the Wake of a Maneuvering Body in a Stratified Fluid KYLE BRUCKER, SUTANU SARKAR, University of California San Diego — The turbulent wake that exits behind a submersed body moving in a stratified fluid is the subject of many experimental and numerical investigations, no doubt due to its great importance to the field of submersible vehicle design and operation. In practice a submersible body moves at a constant speed, but frequently experiences unsteady motion (i.e. acceleration, deceleration, change in direction). However, this case has received little attention and instead other idealized flows more amenable to the current experimental and numerical tools available are used as surrogate flows to make *inferences* about characteristics of the wake. The maneuvers are characterized by the ratio of the thrust and drag coefficients and a geometric factor relating the thrust and drag regions. Results for the maneuvering wake include wake height, wake width, peak defect velocity for $1 < x/D < 1000$. In the near wake, $1 < x/D <\approx 20$, the instantaneous and stream-wise average *r.m.s.* velocities and turbulent fluxes, $< u_i u_j >$ and $< u_i \rho >$ are presented. In the far wake, $x/D >\approx 100$, two and three dimensional contours and isosurfaces of the vertical vorticity are presented. Differences between the maneuvering wake and the more well understood towed wake will be highlighted and discussed in terms of the aforementioned quantities.

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