

Abstract Submitted
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Numerical simulation of flow around a sphere moving through a stratified fluid TREVOR ORR, JULIAN DOMARADZKI, University of Southern California, GEORGE CONSTANTINESCU, University of Iowa — Flows generated by submersed bodies in stratified fluids have been investigated in numerous experiments and numerical simulations. Numerical simulations are focused in the far-wake region, where computational costs prohibit including the explicit computation of the flow around the sphere. Initial conditions for such far-wake simulations are constructed using information gathered from experimental results of the near-wake properties, but these initializations lack full information about the density field. We present results of numerical simulations that explicitly include the sphere in the computational domain over a range of Reynolds numbers and Froude numbers. The simulations are compared with existing experimental and numerical data. In particular, turbulent simulations using the Spalart-Allmaras DES method are included along with comparison of experimental data collected at USC for $Re=5000$ and $Fr=4$.

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