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**Stratified turbulent wake of a prolate spheroid** JOSE LUIS ORTIZ-TARIN, KARU CHONGSIRIPINYO, SUTANU SARKAR, Univ of California - San Diego — Numerical simulations are performed to study the stratified turbulent wake behind a 6:1 aspect ratio prolate spheroid at zero angle of attack. The incompressible Navier-Stokes equations under the Boussinesq approximation are solved along with the density equation. The body is represented using an immersed boundary method. A finite-difference formulation on a staggered, cylindrical grid is implemented with spectral treatment for pressure in the azimuthal direction. Linear and non-linear (pycnocline) density profiles are employed in order to analyze the effects of stratification on flow features such as force coefficients, wake dimensions, coherent structures, first and second order statistics, frequency response and vortex shedding. Differences between the internal gravity waves created by the body and those created by turbulent regions are noted. The benchmark case of flow past a sphere is compared to the prolate spheroid case with particular attention paid to the near wake and non-equilibrium phase.

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