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Near wake characteristics in a stably-stratified fluid[1] TRYSTAN MADISON, XINJIANG XIANG, PRABU SELLAPPAN, GEOFFREY SPEDDING, University of Southern California — Decaying stratified turbulence that is free to evolve in the presence of a stable density gradient eventually reaches a state dominated by low Froude number dynamics where persistent patterns emerge. Whether or not information from the initial turbulence creator persists in the formation of these patterns is still an open question. For example the late time evolution of bluff body wakes have been shown to have universal characteristics that are independent of the details of the original generator while experiments on the near wake of a towed grid suggest that the earliest stages of flow development do depend on the initial conditions. Here we present near wake characteristics of two grids with varied mesh spacing and similar solidity, a disk, and a sphere, all of equivalent drag, for $Re = \{1000, 3000\}$ and $Fr = \{1, 4\}$. Quantitative measures in the wake signature deriving from whole-field PIV measurements will be used to specify when and how near wakes are similar, or different from each other, and from expectations or suppositions in the literature.

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