Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Simulation of flow past a sphere in a stratified fluid MATTHEW DE STADLER, SUTANU SARKAR, University of California San Diego — Direct numerical simulation is used to simulate spatially-evolving flow past a sphere in a stratified fluid. The immersed boundary method is used to treat the sphere inside the domain. The main objective of this study is to characterize the near wake region. Statistics of interest include the drag coefficient, separation angle, Strouhal number, and the spatial evolution of the velocity fluctuations and the defect velocity. In addition to quantitative statistics, visualizations of the vortex structures in the wake will also be provided and discussed. Results are compared and contrasted with previous experimental and numerical data for unstratified and stratified flow past a sphere.

Matthew de Stadler
University of California San Diego

Date submitted: 16 Sep 2011   Electronic form version 1.4