Ocean Glider Sampling and Data Assimilation

A postdoctoral research position is available to investigate glider sampling strategies in observations system simulation experiments (OSSEs) at the Naval Research Laboratory (NRL). The project is designed to determine preferred observations strategies for glider-type unmanned underwater vehicles (UUVs). Glider deployments are simulated in relocatable model experiments nested in the global operational model. Glider deployments and instructions are determined based on minimizing a cost function defined using model predictions and adjoint assessments. As the gliders move through the nature ocean, their observations are assimilated into the experimental forecasts. Model results are evaluated in terms of the fidelity of sound speed propagation between the nature and assimilative experiments. Ultimately, the OSSEs will be used to predict combined asset levels and sampling strategies needed to achieve and maintain a desired performance metric. Associated field evaluation efforts will direct gliders in Navy exercises and evaluate performance with dense independent observations. Glider assimilation will be combined with remote sensing and alternate in situ observations to provide a comprehensive sampling strategy.