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Overview of U.S. Navy Operational Oceanographic Models in Support of Acoustic Applications

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The Naval Oceanographic Office operational global 1/8° Navy Coastal Ocean Model assimilates satellite and in-situ data to produce daily 72-hr forecasts. Output includes 3D fields of temperature, salinity, u- and v- components of ocean currents at standard depth levels, and these support derived fields including sound speed and sonic layer depth. The global model provides initial/boundary conditions for nested regional models, primarily relocatable NCOM. The relocatable NCOM modeling system can be set up quickly for areas of interest, includes river and tidal forcing, and is forced with a high-resolution atmospheric mesoscale model. Local and remote observations are incorporated into the models through the Navy Coupled Ocean Data Assimilation system, which assimilates sea surface temperature data from satellite, ships and buoys, profile data from floats and gliders, xbt's, CTD's, fixed and drifting buoys as well as altimeter-derived sea surface heights and ice concentration. In this presentation we will discuss how the operational ocean models feed into acoustic prediction models and tactical decision aids, the role glider observations will play in the modeling strategy, the use of ensembles to provide improved prediction error estimates and guide new observations, and future plans.